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ABSTRACT

Student retention and transfer was studied at the University of California (UC) system as one aspect of undergraduate enrollment planning. A task group examined the following questions: (1) What is known about attrition? (2) When do students leave? (3) Who are the high-risk students? (4) Why do students leave? and (5) What is being done about it? Information is presented concerning the following areas: graduation rates for freshmen and for junior entrants, attrition rates for freshmen, junior entrants, and community college transfer students, attrition rates among ethnic groups, academic and social integration, financial aid and employment opportunities, and what students want to change in the university. The following university programs and services are addressed: summer programs, orientation, advising, curriculum changes, honors programs, additional on-campus housing and jobs, and planned leaves. The task group found selected instances of high and rising attrition at some campuses, for some ethnic groups, and for community transfer students who were ineligible from high school or who had low transfer grades. The university had initiated several activities to improve articulation and preparation and the campuses had begun several programs to improve the quality of student life and hopefully to improve retention. Recommendations pertain to efforts to improve articulation and preparation, university programs and services, and university administration. Appended materials include information on characteristics of UC campuses. (SW)

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RETENTION AND TRANSFER

University of California Undergraduate Enrollment Study

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Report of the Task Group on

RETENTION AND TRANSFER

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Berkeley, California
June 1980

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EXECUTIVE SUMMARY

of the

Retention and Transfer Report

The charge to our Task Group was to study retention as one aspect of undergraduate enrollment planning in the University of California. In response, we reviewed the literature, contacted other major state-supported universities, and developed our own information from student records and through interviews with students. Also, local committees were formed on each campus to discuss the problems of retention and transfer. The information collected addressed the five basic questions that follow as section headings.

WHAT DO WE KNOW ABOUT ATTRITION?

Graduation rates for UC freshmen from the UC system (6 out of 10 in five years) are comparable to those of other state-supported universities. A seventh student will eventually graduate after a period of more than five years. One of the three who leave the University of California will eventually graduate from another college or university. Therefore, 8 out of 10 students who start as freshmen at one of the UC campuses will eventually obtain the baccalaureate from some college or university. In contrast, only 3 out of 10 freshmen in the California State University and Colleges (CSUC) System will graduate in five years from that system, and 8 out of 10 freshmen who enter the most selective private universities will graduate in five years from the same institution.

The eight general campuses of the University of California differ in several important respects, including, size, location, breadth and types of academic programs, and selective emphasis. Not surprisingly, one also finds differences in graduation rates among the campuses. One major reason for this is that students frequently transfer from smaller to larger campuses to complete the baccalaureate. Although historical data on graduation rates are not available for most campuses, the information that is available suggests that: 1) the five-year graduation rates in the early 1970's are somewhat higher than the graduation rates of the late 1940's, 1950's and early 1960's and 2) students of the 1970's are taking longer to graduate than their counterparts of the 1960's.

In contrast to these figures for freshmen, we found that the graduation rates for junior entrants, particularly community college transfers, have been declining and more transfer students are leaving in academic difficulty. Approximately 3 of 10 students who transfer to a UC campus from a community college leave within the first year, and approximately one-half of them will leave in academic difficulty. Increasing academic difficulty at the University is most pronounced for those with marginal grades in community college courses. Academic performance has decreased to the point that now two-thirds of all students who transfer from a community college with GPA's between 2.4

and 2.8 are on probation at some time during the first year. Also, fewer students are transferring from community colleges to the University. If we continue on the present downward spiral, many community colleges will not articulate with the University of California, because they will not be able to afford to offer the vocational and community service programs their students demand as well as the breadth and quality of program that will prepare students for the University of California.

WHEN DO STUDENTS LEAVE?

More students, including both freshmen and transfers, who leave the UC system before completing the baccalaureate, do so within their first academic year than in any other year. Most students who formally withdraw during the quarter reenroll for the next quarter. The students who leave a campus frequently complete the term but fail to reenroll during a subsequent quarter.

WHO ARE THE "HIGH-RISK" STUDENTS?

The literature indicates that students with the following characteristics tend to have higher attrition rates: poor previous academic performance, low test scores, lack of an academic or career goal, and lack of involvement with the campus community. Like other studies ours found that while there was a tendency for preadmission GPA's to be related to academic performance at the University, the background variables in our student record files were not good predictors of attrition in academic difficulty. However, we did find differences between the behavior of drop-outs and persisters after entering the University. Lack of involvement seems to be an important factor: most of our students who leave say they did not go to anyone for help in making their decision; and our persisters were more likely to have participated in orientation, worked on campus, lived on campus, worked no more than 20 hours per week, seen a counselor or advisor, and to have participated in extracurricular activities. We also found higher attrition rates for students who did not meet the University's regular admission requirements and, therefore, were admitted by special action.

We suspect that there may be differences in attrition in different academic programs, but because most lower division students do not declare a major and upper division students frequently change their majors, we were not able to draw meaningful conclusions for the University as a whole. Even when we attempted to control for these factors, we found different patterns for different campuses and variations in rates over time. Consistent with the results of a national study, a regional study and reports from several other universities, we found that Black and Hispanic students have lower graduation rates than Caucasians; and that Asians have the highest graduation rates.

WHY DO STUDENTS LEAVE?

Sometimes there is a tendency to equate attrition with "flunking out." However, we found that only one-half of the students who left were in academic difficulty. Because most of these students have had a history of being good students, the important question is, "Why do they get into academic difficulty?"

There is no simple explanation for why students leave, because a large number of psychological, sociological and economic factors interrelate in ways that make it difficult to determine the factors that led to the decision to leave. Based upon our telephone interviews, we roughly estimate that 40% of attrition is associated with academic integration, another 10% is related to social integration, and the rest can be attributed to personal and financial factors. For some students the combination of these factors results in poor academic performance, but many times the student voluntarily withdraws in good academic standing. For example, poor health could result in poor performance or withdrawal from the University while still in good standing. For other students the commitment to completing the baccalaureate or the commitment to that campus is so strong that the student makes a special effort to overcome the factors that would have led others to drop out.

In general, we found that students were very pleased with the University. Of course some students who left indicated that they would like smaller classes, more parking and more low-cost housing; but many students who were still enrolled also shared these concerns. That is not to say that they are not real problems or that no action on the part of the University is required. Rather, these are not the primary reasons for dropping out. Many stayers and leavers expressed a concern about the quality of academic advising.

WHAT ARE WE DOING ABOUT IT?

Most of the policy issues and program alternatives related to retention are local campus matters that are being addressed as a part of each campus's academic plan. Therefore, the Task Group has served as a coordinating body facilitating the collection of data and the exchange of information about programs. We do note that for the University as a whole, a large number of students leave without completing a degree, and that a relatively small increase in the retention rate could have an important effect on enrollment during the next decade when the number of high school graduates will be declining. We also note that attrition rates are higher for some groups of students and that attrition rates are increasing at some campuses. However, we feel that there are limits on the extent to which the retention rate can be improved, because our graduation rates are already quite high, we cannot adopt more selective admission requirements and poor preparation in the high schools may even lead to lower retention rates.

We have found considerable interest in the development of information about retention, as well as many excellent programs already in existence at the campuses to help students to reach their full potential. We have also distributed information about programs at other universities to representatives from each of the campuses for appropriate consideration by Senate and Administrative groups.

RECOMMENDATIONS

EFFORTS TO IMPROVE ARTICULATION AND PREPARATION

1. We support the recommendations of the Joint Administrative-Academic Senate Task Force on Academic Preparation in California High Schools and Community Colleges.

2. We recommend that the Chancellors, in cooperation with the faculty, make every effort to improve communication and articulation with the community colleges in their local areas.

UNIVERSITY PROGRAMS AND SERVICES

Academic Senate

3. We recommend that each of the Academic Senate divisions discuss its campus's particular retention problems and consider ways in which the University might improve retention and transfer.

4. We recommend that the following aspects of the semester system that appear to promote retention be contributed to the debate on the merits of different academic calendars:

   a) the semester system provides more time so that the mid-term grades can be issued and can be used by both students and advisors as an early indicator of academic difficulty,

   b) most community colleges are on the semester system, which contributes to articulation difficulties, and

   c) the semester system provides more time, particularly in the student's first term, for the student to adjust to the University environment.

5. We recommend that the Academic Senate consider strategies for responding to the fact that a growing number of freshmen are not prepared for University-level course work.

University Administration

6. We recommend that the Chancellors pay particular attention to orientation and advising on their campuses. Adequate resources should be provided for these services, and efforts should be made to improve training and communication. Orientation programs should incorporate the findings of this study.

7. We recommend that Chancellors undertake a careful review of their student services units in light of changing student needs. The increasing number of older, working and ethnic minority students, coupled with increasing vocationalism and inadequate preparation of more students, may necessitate a reorientation and possibly a reorganization of student services.

8. We recommend that campuses develop strategies for identifying "high-risk" students, contacting them individually and referring them to an advisor or appropriate student services unit.

ACKNOWLEDGEMENTS

We want to give special thanks to Professor Martin Trow and Professor Stephen Weiner from Berkeley and Professor Joseph Watson from San Diego who served as our faculty advisory committee and played an important role in the development of this report. They pointed us in the right direction in the beginning, reviewed our proposed research design and guided us in the preparation of our final report. The study was also discussed with several UCLA faculty members who have conducted research in this area, including Professors Alexander Astin, Arthur Cohen, Robert Pace and James Trent. Stephen Yale from Enrollment Analysis, Inc., who has served as a consultant to the Santa Cruz campus and several other colleges and universities, helped to place our study in a national perspective, as did Oscar Lenning and Philip Beal of the National Center for Higher Education Management Systems and Professor Patrick Terenzini of the State University of New York, Albany. We also want to thank Professor Carl Harris, last year's chair of the Universitywide Committee on Educational Policy who reviewed our proposed research design and indicated the types of issues that were likely to be of greatest concern to the faculty, and the members of this year's committee for a useful discussion of our preliminary findings. Professor William Broen, Chair of the Board of Admissions and Relations with Schools, also gave us helpful suggestions on an earlier draft of this final report.

Several individuals provided valuable staff support to the Task Group. Sylvia Ortiz-Wiley and Karen Butter provided administrative assistance. Wayne Smith and Siu Chow merged the computer files and generated the descriptive attrition reports for Irvine, Los Angeles, Riverside, San Diego and Santa Cruz. Wayne's previous experience in this area and his technical knowledge of our student systems were invaluable. Galen Jarvinen generated the statistical analysis of our telephone survey data. Jo O'Donnell, who was on leave from Washington State University, and Ernie Scalberg drew upon their experience in student services to help design and conduct the telephone survey. Ernie Scalberg and Monica Salm also developed a matrix, summarizing the research findings and effective programs, which was distributed to all of the Task Group members.

Each Task Group representative also involved many faculty, students and administrators from his or her own campus. These individuals gave their time and energy to the local studies, and brought different perspectives to the development of our present understanding of the major issues.

Finally, we want to thank those members of the Systemwide Administration who gave birth to our Task Group. Vice President Swain and Assistant Vice President Hershfield believed in the use of campus representatives to conduct a systemwide enrollment study and provided the funding for our project. We applaud them for their foresight and strongly recommend that future studies be conducted in this format. And last, but not least, we thank Sandy Smith, who served as the systemwide coordinator of this enrollment study, for being there whenever we needed her to resolve our budget problems, to discuss the study and to coordinate our efforts with those of the other three Task Groups.

Clearly, our study drew upon the knowledge and talents of a large number of individuals in the University community. The effectiveness of our efforts can be attributed to no single individual, but rather the collective efforts of all involved. We are confident that as the circle of individuals discussing the problems of retention and transfer continues to expand new and creative solutions will be found.

PROLOGUE

The study of retention and transfer is far from an exact science. The individual's decision to leave the University usually involves a large number of psychological, social and economic factors interacting in complex ways. Often that personal decision is not the direct result of factors within the control of the University.

To convey to the reader how these factors contribute to the dynamics of enrolling and dropping out, we draw the following analogy between student attrition from the University and the attrition of members from our Task Group. The initial membership of our Task Group included ten administrators, one faculty member and two students. One individual who never attended our meetings is analogous to those students admitted to the University, who register for their initial quarter but never enroll in classes. One other member of the Task Group was working at one of the campuses at the beginning of our study, but accepted a job at another campus several months before the completion of the study. This is analogous to those students who begin their freshman year at one campus and then transfer to another before completing the baccalaureate. Two administrators, who were added while the study was under way, were similar to those students who transfer to the University in the junior year after attending another college.

Four other individuals dropped out before the completion of our study. Each individual's personal reasons for leaving the Task Group were different. Each individual had considered a variety of factors and decided that some other path would lead to the achievement of his or her educational and career goals. The final decision was very reasonable for that individual, and in each case the factors being considered were beyond the control of the Task Group. Our discussions with these individuals were very similar to our telephone interviews with students who had left the University before completion of the baccalaureate.

We do not consider those Task Group members who dropped out to be failures; neither do we assume that only those students who eventually graduate are successful.

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CHAPTER I

INTRODUCTION

CHARGE TO THE TASK GROUP

On June 16, 1978, the Task Group on Retention and Transfer was appointed as part of an overall study of undergraduate enrollment in the University of California and was charged with:

> determining the factors that influence retention and that cause withdrawal or transfer, and with suggesting some alternative strategies for improving our ability to retain students.

With the appointment of this Task Group, the University of California joined more than 800 other colleges and universities in the United States studying retention in relation to enrollment planning.

Clearly, an improvement in the retention rate could help offset the enrollment impact of a projected decline in the number of California high school graduates. Of the 35,000 undergraduate students admitted each year, approximately 10,000 leave the University of California without completing the baccalaureate; and approximately one-half of those will still be in good academic standing. In fact, the report of one of the other Task Groups in this enrollment study indicates that a one percent increase in the retention rate for existing students could have a two- to three-times greater impact on enrollment than a similar increase in the rates of attracting new students to the University. In other words, as those who lead the ACT Enrollment and Retention Workshop urge, we should begin the recruitment process by looking at those students who are already enrolled.

For a variety of reasons, however, one should not expect a significant increase in the University of California (UC) retention rate. UC retention rates are already higher than those of many other universities. Although many colleges and universities across the United States with lower retention rates have begun programs to reduce attrition, most have not been formally evaluated. With growing concern about poor preparation in the high schools and declining performance of community college transfers, one could predict that our retention rate will decline. Therefore, a more realistic goal may be to improve the quality of student life on our campuses and to strive for a higher retention rate for some groups of students who have a high probability of leaving before completing the baccalaureate.

We should not assume that every UC student will eventually graduate. Nor should we assume that attrition is necessarily bad. The educational and personal goals of some individuals can be best attained by leaving the University before receiving a degree. Admissions criteria cannot insure an ideal fit between the needs and abilities of the individual and the campus's academic program. Indeed, some students enter a campus intending to complete the degree elsewhere; others matriculate intending to complete

the degree at that campus, but for a variety of reasons change their plans after enrolling. Thus, one should recognize that a certain amount of attrition is inevitable, as some students will leave a campus for personal or financial reasons, or to enroll in an academic program at another institution they perceive to be more consistent with their academic interests and abilities. In fact, our discussions with students indicated that 60% of the students who left a UC campus were enrolled in another college or university, and were not "drop-outs" from higher education.

Neither should we assume that students leave the University either because they did not make satisfactory academic progress or because they were dissatisfied with the University. Approximately one-half of those who leave the University system are in good academic standing and leave for a variety of personal and financial reasons. Also, we found that the overwhelming majority of our students are satisfied with the University.

However, there are some students who leave the University dissatisfied and disillusioned. In these instances, attrition results in a cost to the student and the University. Unfortunately, some of these students may have left for the wrong reasons--misperceptions of the type of programs and services the University offers, or misunderstandings about requirements. While the instances of "correctable attrition" remain low, we should continue our commitment to reducing misperceptions and misunderstandings. In keeping with this institutional commitment we will offer several recommendations in Chapter III of this report that we believe will improve the quality of student life and will help students reach their full potential.

RESPONSE TO THE CHARGE

All four Task Groups that comprised this systemwide undergraduate enrollment study were asked to conduct their part of the study in ways that would lead to action, not only by the Systemwide Administration, but also on the campuses. Our efforts were concentrated at the campus level, rather than the systemwide one, for several reasons. First, most of the policy issues are local matters. Second, because we were aware of significant differences among campuses, we knew that it would be difficult to draw meaningful inferences for campus decision-making without tailoring the data gathering to the specific needs of each campus. Third, because some campuses had already begun studies of retention, we developed a general framework that would utilize existing campus information and would collect new information that would be similar but not necessarily identical for all campuses. Fourth, it was not technically feasible to produce the same student retention reports for all campuses, because several campuses had developed their own, somewhat different, student information systems.

For these reasons we considered our study to be a collection of eight separate campus studies, drawing upon existing information and collecting new data relevant to local policy issues. Members of the Task Group solicited the involvement of other members of their campus communities in the study. The systemwide Task Group's role was to serve as a coordinating

body, facilitating the exchange of data and information about programs. We also received helpful suggestions from many faculty members who helped us to put our study in the context of research conducted and programs begun at other colleges and universities.

In recognition of the differences among the eight UC campuses that have general campus undergraduate programs, and as a consequence of selecting this approach, this report contains relatively few unqualified systemwide generalizations or recommendations, considering the importance of the topic and the magnitude of the issues. However, there have been several actions taken as a result of the appointment of this Task Group. There has been an increased awareness of specific attrition problems on campuses. New data from telephone surveys were collected to help us understand why students leave. Existing data in student information systems were reorganized to produce the first hard data on attrition rates for most campuses. Campuses shared information about retention programs, and some new programs have been initiated.

Therefore, the real effectiveness of our efforts can best be judged by the self-analysis and program initiation at each campus, rather than this systemwide report. And, there is evidence that the process of self-analysis and program initiation is under way. There has been broad interest in developing more information about retention and discussing the problems from all groups within the University community. Three campuses (Davis, Irvine and Santa Barbara) have developed reports on academic advising, and two other campuses (Los Angeles and San Diego) have appointed committees on advising. Committees on two campuses (Riverside and Santa Barbara) have recommended changes to reduce attrition, and several actions have already been taken. Also, the Berkeley and Los Angeles campuses have recently reorganized academic support services in response to the issues addressed in this report. Unlike those studies that gather dust on the shelf, the results of our research were available to the campuses, recommendations were developed and actions were taken before this Systemwide report was issued.

The Task Group organized its efforts around five basic questions: 1) What do we know about attrition? 2) When do students leave? 3) Who are the "high-risk" students? 4) Why do students leave? and 5) What are we doing about it? Chapter II of this report provides our answers to these questions; Chapter III discusses the findings and presents a series of recommendations; and Chapter IV provides an overall conclusion to the study.

INFORMATION GATHERED

We began our study by exchanging copies of articles, books and reviews of the literature on attrition. The early studies we reviewed focussed on the relationship between the selectivity of the institution and retention. Indeed, as the comparison of graduation rates for colleges and universities in the next chapter confirms, the higher graduation rates at some institutions can, at least in part, be attributed to selectivity. However, the more recent literature indicates that not all students who fail to graduate

leave in academic difficulty and that there are limitations on the ability of admissions criteria to select only those who are likely to succeed academically. Therefore, many of the more recent studies have attempted to identify the characteristics of drop-outs.

These studies indicate that demographic variables (e.g., ethnicity), indicators of academic aptitude and performance (high school grades, standardized test scores and first-quarter college grades), personal factors (involvement in extracurricular activities, use of campus support services, living on campus, working on campus, and receipt of financial aid), and a variety of other indicators of the fit between the individual and the institution, have been shown to differentiate persisters from those who stop out, transfer, or drop out (Astin, 1975; Cope and Hannah, 1975; Pantages & Creedon, 1978; Tinto, 1975). Rather than provide our own review of the literature, we refer the reader to these sources and to a report available from the National Center for Higher Education Management Systems (NCHEMS) entitled "Retention and Attrition: Evidence for Action and Research" (Lenning, Beal and Sauer, 1980), which provides an excellent synthesis of the theories and research in this area.

In addition to identifying the characteristics of drop-outs, one recent book also discusses programs that could increase retention (Astin, 1975). Astin suggests that institutions should 1) attempt to improve student academic performance through tutoring, study skills development courses, and intervention programs that provide special assistance for students identified as "high-risk," 2) reduce academic boredom through honors programs and various forms of non-traditional instruction, 3) use the identification of "high-risk" students to improve orientation, counseling and advising programs, and 4) increase on-campus student housing, on-campus student employment, and opportunities to participate in extracurricular activities. As indicated in the next chapter, UC campuses have already initiated many of these activities.

We also wrote letters to 55 colleges and universities, and 12 higher education associations asking for studies they had conducted and programs they felt were effective. In the process we learned about a study that was being conducted by Philip Beal and Lee Noel for the American College Testing (ACT) Program and the National Center for Higher Education Management Systems (NCHEMS). The results of their study have since been published (Beal and Noel, 1979) in a booklet entitled "What Works In Student Retention." Our discussion with Professor Beal verified the following portion of one university's response to our inquiry:

> My own experience is that 'models' and wisdom promoted by ACT, Astin and others probably won't work at the level of a particular campus. I tell people that if such schemes are implemented locally, the institution runs the risk of committing an ecological fallacy, i.e., making inferences about a particular institution from grouped data. In other words, it is likely that the process of retention-attrition differs widely across the campuses in your system.

Taking this seriously, we decided that it was important to determine the factors affecting retention at each of our eight campuses. We agreed to develop retention rates from our student information systems, to conduct a telephone survey of students who had left the University and to share information about programs designed to improve retention. However, the development of retention rates was not a simple matter. We found that the campus student information systems produced many reports, but all were organized by academic term rather than by student. It was not possible to trace a student from the day he or she was admitted until the time of leaving the University. With funding provided by the Systemwide Administration, the computer files for each term were merged to provide a complete record for students who entered after the Fall of 1972.

These completed student record files were used to generate descriptive attrition reports for the Irvine, Riverside, Santa Cruz and San Diego campuses. Samples of these reports are included in a separate Technical Appendix, which is available from the Academic Vice President. The Berkeley, Davis and Los Angeles campuses had already begun to develop an historical student file. Separate, but similar, descriptive attrition reports were provided by these three campuses. We were not able to resolve the technical problems that prevented the construction of an historical file for Santa Barbara students. However, the Santa Barbara Campus Planning Statement indicates that the percentage of freshmen who eventually graduate from that campus has increased from 50% in the 1960's to 60% as a result of adopting a more flexible policy on general education requirements and increasing the breadth of academic offerings.

Also, because each campus uses different student identification numbers, it was not possible to track students who transferred from one campus to another. However, we did use other information available on the number of inter-campus transfers (ICT's) to develop estimates of the effect on graduation rates. A discussion of the inter-campus transfers and our estimating procedure is included in the separate Technical Appendix. Because the student information systems and the programs that produced the attrition reports were not the same for each campus, the data included in this report are not strictly comparable, but are similar enough to provide a frame of reference for campuses studying their own attrition and graduation rates.

These attrition reports helped to identify who had left and when, but not why. We were skeptical of the results of exit interviews with withdrawing students, because other institutions had found that not all students formally withdraw and those who do, tend to say those things they think counselors want to hear so that they will not be delayed. So, a telephone survey instrument was developed, patterned after a study conducted at the Riverside campus. Even though we recognized that there are problems with this type of survey as well, we felt that it was important to collect some information about why students leave. Therefore, five campuses modified the instrument to meet local needs, and then called a sample of students who had left and a sample of students still enrolled. A sample of the survey instrument and a summary of student responses to each of the questions in the telephone interview is included in the separate Technical Appendix.

The major findings of our study are presented in the next section of our report. These findings represent a composite of our review of the literature and the studies conducted at other institutions, the descriptive attrition reports for UC campuses, the results of the telephone interviews and our discussions with individuals who work with students.

CHAPTER II

FINDINGS

WHAT DO WE KNOW ABOUT ATTRITION?

The focus of this enrollment study was on general campus undergraduate students. No data were collected for students in health science programs or for graduate students. Because several other reports produced by the Systemwide Administration present data on the performance of the comparatively few students admitted by special action, we focussed our study on the 95% of the students who met the University's regular admission requirements. Also omitted were those advanced high school students who are permitted to enroll in UC courses during their senior year. Because there are relatively few foreign undergraduate students we also omitted data for students who were not U.S. citizens. The following sub-sections provide data on graduation and attrition rates for students who entered as freshmen and for students who transferred to the UC system as juniors.

Graduation Rates for Freshmen

The eight general campuses of the University of California differ in several important respects including size, location, breadth and types of academic programs, and selective emphasis. The table in Appendix A summarizes some of these differences, based upon information included in the UC Undergraduate Application Packet. Not surprisingly, one also finds differences in graduation rates among the campuses.

Table 1 shows the differences in freshman class size, and in graduation rates for cohorts of regularly admissible, domestic freshmen who started in 1972 and 1973. These graduation rates reflect the percentage of the entering freshman class who graduated from the same UC campus within five calendar years.

Table 1

Freshman Class Size and Five-Year Graduation Rates from the Same UC Campus

CAMPUS	Number of New Freshmen*		Percent of Freshmen Who Entered in	
	1972	1973	1972	1973
Berkeley	2,575	2,958	63	59
Davis	1,942	1,905	62	62
Irvine	1,453	1,586	48	47
Los Angeles	3,585	3,669	52	53
Riverside	575	563	46	51
San Diego	1,326	1,720	43	42
Santa Barbara	NA	NA	NA	NA
Santa Cruz	1,077	1,117	46	41

* Excluding health science, special action, foreign and high school students.

Smaller campuses tend to have somewhat lower graduation rates. One major reason for this is that students frequently transfer from smaller to larger campuses to complete the baccalaureate. To illustrate this point, Table 2 shows the percentage of freshmen who indicated that chances were good that they would transfer to another college, and our estimate of the percentage of freshmen who graduated from the original UC campus or from any of the UC campuses. For this calculation students who transferred to another UC campus before graduating were credited to the first UC campus they attended.

Table 2

Effect of Inter-campus Transfers on Five-Year Graduation Rates

CAMPUS	% of Freshmen Thinking about Transferring to Another College*	% of Freshmen Who Entered in 1972 and Graduated from the Original Campus	% of Freshmen Who Entered in 1972 and Graduated from any UC Campus
Berkeley	5	63	67
Davis	11	62	67
Irvine	11	48	58
Los Angeles	7	52	57
Riverside	14	46	59
San Diego	NA	43	55
Santa Barbara	16	NA	NA
Santa Cruz	22	47	53

* All figures from the 1978 ACE Freshmen Survey except for Davis whose figure is for 1976.

More freshmen who enter the smaller UC campuses indicate that they might transfer to another college. Approximately one-half of those who do leave the Irvine, Riverside and San Diego campuses in good academic standing transfer to another UC campus. However, at Santa Cruz, which has one of the highest percentages of freshmen who indicate that they might transfer, most of those who do leave in good standing do not transfer to another UC campus. As shown in the last column of Table 2, the differences in graduation rates among the campuses become smaller if we assume that most of those students who transfer to another UC campus will graduate and if these graduates are credited to the original campus. Overall, about 6 out of 10 students who start as freshmen will graduate from one of the UC campuses in 5 years. A seventh student will eventually graduate after a period of more than 5 years. Although we were not able to track those students who left the UC system, estimates from another study of the freshman class of 1970 at four UC campuses (Pace and Rosenstein, 1978) suggest that 1 of the 3 who leave the University of California will eventually graduate from another college or university. Therefore, 8 out of 10 students who start as freshmen at one of the UC campuses will eventually obtain the baccalaureate.

These figures may seem to be surprisingly high, but it must be remembered that the University of California has relatively selective admissions standards. Under the Master Plan for Higher Education, the University of California (UC) admits applicants from the top 12 1/2% of California's high school graduating class. The California State University and Colleges (CSUC) system admits the upper 33 1/3%; and there is open admission for all high school graduates or 18 year-olds to the California Community Colleges. Therefore, our five-year graduation rate (6 out of 10) should be expected to be higher than the 3 out of 10 who graduate from the CSUC system in five years (CSUC Division of Institutional Research, 1979). In general, graduation rates from the UC system are similar to or higher than other state-supported universities (c.f., Appendix B). However, we were not surprised to find higher five-year graduation rates at the most selective private universities (8 out of 10), which tend to have much more homogeneous student bodies.

Unfortunately, graduation rates were not available for most campuses before 1972. However, we were able to find several persistence studies for students who entered the Berkeley campus in the 1950's and 1960's. As we look at graduation rates at Berkeley over the past three decades, two trends appear: 1) the five-year graduation rates in the early 1970's are somewhat higher than the graduation rates of the late 1940's, 1950's and early 1960's, and 2) students of the 1970's are taking longer to graduate than their counterparts of the 1960's. Three separate studies of the entering freshman classes of 1951, 1955, and 1960 indicate that the five-year graduation rates at Berkeley were 52%, 48% and 49%. The five-year graduation rate had risen to 62% for the freshman class entering in 1970. Unfortunately, no studies were conducted during the 1960's of all Berkeley freshman entrants, so we were not able to determine when the increase occurred or why. We found less variation in five-year graduation rates at UCLA over this same period of time (47% for the 1951 freshman class and 52% for the 1972 freshman class).

In recent years there has been a growing general concern about the declining levels of preparation of students in the high school. The national decline in SAT scores has been widely reported. Although the average SAT scores for UC freshmen are still substantially higher than the national averages, the decline in verbal scores for UC freshmen over the past ten years is larger than the decline in the national average. In fact, approximately 60% of all the UC freshmen must now take a preparatory course in English composition (c.f., Appendix C). It is too early to tell whether these indicators of the declining level of preparation are harbingers of lower graduation rates.

One study (Frank, 1980) comparing the 1966 and 1973 freshmen in Berkeley's College of Letters and Science indicates that students are taking longer to graduate. As can be seen in Table 3 the percentage of students graduating in four years has declined, while the percentage of graduates and students still enrolled after five years has remained constant. Although similar data were not available for other campuses, our discussions with those who work with students indicate that the tendency for freshmen to take longer to graduate is a general trend for all campuses.

Table 3

Persistence of Freshmen Entering the
Berkeley College of Letters and Science in 1966 and 1973

	1966	1973
Total Number of Students	2,420	2,872
% Graduating Within 4 Years	44	36
% Graduating in the 5th Year	14	19
% Still Enrolled	5	8
% Who Graduated or Were Still Enrolled After 5 Years	63	63

The finding that freshman entrants are persisting at the same rate, but are taking longer to graduate, is consistent with another study from the Berkeley campus. That study showed that the students of the late 1970's, like their counterparts of the 1950's and early 1960's, are taking fewer units each term than students of the late 1960's and early 1970's and are more likely to stop out for at least one academic term before graduation.

Graduation Rates for Junior Entrants

Students who were not eligible for admission from high school can transfer to a UC campus after completing 84 quarter units at another college or university with at least a 2.4 GPA and after meeting all but two of the high school subject requirements. Most of these students transfer after completing the sophomore year, but some may not have enough transferrable units to be be classified as a junior by the University. Approximately one-half of the junior entrants transfer from a California community college. The others are intercampus transfers or transfers from other four-year institutions. Specially admitted students, foreign students and students admitted under the Increased Accommodation of Transfer Students (IATS) program, which was an experimental lowering of the 2.4 GPA requirement to 2.0 between 1973 and 1977, have been omitted from Tables 4, 5, 7, 8, 9, 10 and 11.

Table 4 shows the number of students who transferred to a UC campus in the Fall quarter of 1972, 1974, 1976 and 1978 with enough units to be classified as a junior during their first year at the University. While the total number of transfers to the University remained relatively stable between 1972 and 1974, the number has been declining in recent years. Between 1972 and and 1978, the year before and the year after IATS, the number of regularly admissible community college transfers in the Fall quarter with enough units to be classified as a junior declined by 30%.

Table 4

Number of Transfers with Enough Units to be Classified a Junior*

CAMPUS	Students Who Transferred from Community Colleges and Four-Year Institutions				Community College Transfers			
	1972	1974	1976	1978	1972	1974	1976	1978
Berkeley**	1643	1459	1270	941	996	936	832	615
Davis	1137	1115	917	722	800	819	665	509
Irvine	446	559	484	507	291	369	358	312
Los Angeles	1872	1830	1249	1254	1076	1228	824	686
Riverside	411	350	304	247	286	260	246	183
San Diego	214	262	294	343	137	164	176	197
Santa Barbara	NA	NA	NA	NA	NA	NA	NA	NA
Santa Cruz	512	384	587	518	342	234	324	256
Seven Campus Total	6235	5959	5105	4532	3928	4010	3425	2758

* Excludes students admitted under IATS.
** Figures for 1978 at Berkeley are estimates.

Also fewer Community College students are transferring to the California State University and Colleges (CSUC) system. Between 1975 and 1978 the number of community college transfers to the CSUC system dropped by 10%. The latest figures indicate that of 1.1 million students enrolled for credit in the Community Colleges, less than 60,000 transferred to a CSUC or UC campus. Evidence to be presented later in this report suggests that this trend toward fewer transfers is the result of declining enrollment in community college transfer programs and the large growth of vocational programs.

Table 5 shows the three-year graduation rates for transfer students. We were not able to gather comparable data for other major universities, but we did compare the performance of community college transfers over time. In contrast to the freshmen, graduation rates for transfer students have been declining, particularly for community college transfers.

Table 5

Three-Year Graduation Rates from the Same UC Campus for Transfer Students

CAMPUS	Graduation Rates for Students Who Transferred from Community Colleges and Four-Year Institutions in				Graduation Rates for Students Who Transferred from Community Colleges in			
	1972	1973	1974	1975	1972	1973	1974	1975
Berkeley	74	70	68	68	69	67	65	65
Davis	72	71	65	66	72	69	63	65
Irvine	67	61	59	55	66	59	61	55
Los Angeles	68	61	61	62	64	58	56	56
Riverside	67	64	67	66	67	62	65	64
San Diego	53	55	52	52	49	51	46	46
Santa Barbara	NA	NA	NA	NA	NA	NA	NA	NA
Santa Cruz	65	65	58	53	61	61	53	48

The decline in the three-year graduation rates for community college transfers is a function of longer times-to-degree and rising attrition. As with freshmen entrants, more transfers are taking longer to complete the baccalaureate. It is of some concern that more students are taking 3 or 4 years at the University before completing the baccalaureate, considering that these figures are based only on students who had enough transferable units to be fully classified as juniors by the University. The increase in the attrition rate will be discussed in a later section of this report (c.f., Table 8).

We should point out that data collected for the Master Plan Survey Team (Spindt, Prator, Sanders, Peterson and Jensen, 1961) indicated that UC graduation rates for community college transfers in 1953 were similar to the rates we found for students who entered in 1975. However, that 1953 data led the Master Plan Survey Team (1960) to recommend that the UC admission requirement for transfer students, which was 2.4 at that time, be raised.

Attrition Rates for Freshmen

Various published studies frequently use different definitions of attrition. We have defined attrition as the percentage of students in any entering class who had not graduated and were not enrolled at a given point in time. These "attrition" figures will include some students who

will eventually return after the period of time covered in the study. Therefore, attrition rates can provide a useful, but not totally accurate, short-term indicator of changes in retention. Our figures for Irvine, Los Angeles, Riverside, Santa Cruz and San Diego (c.f., Tables 6, 7, 8 and 9) also separate those students who leave in good academic standing from those in academic difficulty (defined as those who have been dismissed, have been placed on probation during any of the last three quarters, or have a cumulative GPA below 2.0). Berkeley was only able to include those whose cumulative GPA was less than 2.0 under the category of academic difficulty. The academic difficulty figures for Davis include those students whose cumulative or last quarter GPA was below 2.0. Students at Santa Cruz do not receive grades. Consequently, the Santa Cruz academic difficulty figures are for students who were subject to disqualification during one of the last three quarters. Because the academic difficulty figures for different campuses are not strictly comparable, the most meaningful comparisons are for the same campus over time.

Table 6 provides attrition rates for students who entered as freshmen. Consistent with the graduation data, overall attrition rates for freshmen have remained relatively stable over time, with an increasing percentage of students leaving in academic difficulty at Irvine, Los Angeles and Santa Cruz.

Table 6

Two-Year Attrition Rates for Cohorts of
New Freshmen Who Entered between 1972 and 1975

	Good Academic Standing				Academic Difficulty				Total			
CAMPUS	1972	1973	1974	1975	1972	1973	1974	1975	1972	1973	1974	1975
Berkeley	23	25	22	18	6	6	6	7	29	31	28	25
Davis	NA	24	23	24	NA	5	7	6	29	29	30	30
Irvine	32	26	22	21	10	18	19	23	42	44	41	44
Los Angeles	18	20	19	17	17	15	16	20	35	35	35	37
Riverside	30	24	31	29	12	12	11	13	42	46	42	42
San Diego	32	36	38	35	12	10	10	11	44	46	48	46
Santa Barbara	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Santa Cruz	35	36	37	33	10	13	12	17	45	49	49	50

The higher attrition rates for students in good academic standing at the smaller campuses are related to the numbers of inter-campus transfers. Approximately 40-60% of those students who leave Irvine, Riverside, Santa Cruz and San Diego in good academic standing transfer to another UC campus.

Attrition Rates for Junior Entrants

Similar data for regularly admissible domestic junior entrants, excluding those admitted under IATS, are included in Table 7. These junior entrants include transfers from community colleges, inter-campus transfers and transfers from other four-year institutions.

Table 7

One-Year Attrition Rates for Transfers from Community Colleges and Four-Year Institutions Who Entered in 1972, 1974 and 1976

	Good Academic Standing			Academic Difficulty			Total		
CAMPUS	1972	1974	1976	1972	1974	1976	1972	1974	1976
Berkeley	13	15	12	7	8	10	20	23	22
Davis	NA	17	14	NA	9	10	22	26	24
Irvine	23	18	16	3	10	15	26	28	31
Los Angeles	12	10	9	10	13	19	22	23	28
Riverside	16	18	18	10	8	9	26	26	27
San Diego	24	22	20	11	9	10	35	31	30
Santa Barbara	NA	NA	NA	NA	NA	NA	NA	NA	NA
Santa Cruz	23	21	23	4	9	11	27	30	32

Consistent with declining graduation rates, overall attrition rates for transfer students have increased for all campuses except San Diego, which has one of the highest attrition rates.

Attrition Rates For Community College Transfers

The Community Colleges provide access for many students to the University of California. Students who did not meet the University's requirements for admission from high school can become eligible to transfer after demonstrating acceptable academic performance in a community college. Also, some students eligible to enter the University from high school choose to begin their higher education experience at a community college. Therefore, transfer admission requirements are important to the three-tiered system of higher education in California.

In 1957 the transfer admission GPA requirement was raised from 2.0 to 2.4, for students who had completed 60 or more transferable semester units. A few years later the Master Plan Survey team (1960) reviewed admission requirements and recommended that:

> A study of the transfer procedures to both the University and the state colleges be undertaken through the coordinating agency during 1960 with the view of tightening them. Evidence available to the Master Plan Survey team indicates the need for such action.

While some of the exceptions to the basic transfer admission requirements were eliminated in 1962, the GPA requirement remained at 2.4. Eleven years later the University adopted the Increased Accommodation of Transfer Students (IATS) experiment that actually lowered the GPA requirement to 2.0 during the period from 1973 to 1977. Because the performance of those students admitted under IATS was relatively poor, the University returned in 1978 to the previous admission standards. To make the figures consistent over time, we have removed all students admitted by special action and under IATS from the following tables. Also, these tables include only those students with enough transferable units to be classified as a junior during their first year at the University.

Table 8

One-Year Attrition Rates for Community College Transfers
Who Entered in 1972, 1974 and 1976

	Good Academic Standing			Academic Difficulty			Total		
CAMPUS	1972	1974	1976	1972	1974	1976	1972	1974	1976
Berkeley	13	14	11	10	11	12	23	25	23
Davis*	NA	15	13	NA	10	11	21	25	24
Irvine	22	17	15	4	10	15	26	27	30
Los Angeles	11	10	8	12	15	22	23	25	30
Riverside	15	17	17	10	8	10	25	25	27
San Diego	25	23	16	12	10	12	37	33	28
Santa Barbara	NA	NA	NA	NA	NA	NA	NA	NA	NA
Santa Cruz	25	22	20	5	9	12	30	31	32

* Figures for the Davis campus include students admitted under IATS.

Over the five-year period between 1972 and 1976 the overall attrition rates for community college transfers have increased at most campuses, with increasing attrition in academic difficulty at Irvine, Los Angeles, and Santa Cruz. Approximately 3 of 10 students who transfer to the University of California from a community college leave within the first year; and almost one-half of those will leave in academic difficulty.

The decline in academic performance that leads to rising attrition in academic difficulty is particularly noticeable for transfers at the lower end of the eligibility spectrum (i.e., community college GPA's between 2.4 and 2.8). As shown in Table 9, an increasing percentage of students with marginal grades in community college courses are encountering academic difficulties after transferring to the University of California. Over the five years covered in this study, the percent of students transferring from a community college with a GPA between 2.4 and 2.8 who were on probation at some time during the first year rose from 41% to 68%. This is a matter of some concern because one of every five regularly admissible community college transfers has a GPA between 2.4 and 2.8.

Table 9

Academic Difficulties Encountered by Community College Transfers with GPA's between 2.4 and 2.8 Who Entered in 1972, 1974 and 1976

	First Year Attrition In Academic Difficulty			Percent on Probation In First Year		
CAMPUS	1972	1974	1976	1972	1974	1976
Berkeley	18	21	33	NA	NA	NA
Davis	NA	NA	NA	NA	NA	NA
Irvine	7	23	16	20	60	62
Los Angeles	19	25	33	48	64	77
Riverside	12	14	19	34	37	54
San Diego	26	12	19	55	41	54
Santa Barbara	NA	NA	NA	NA	NA	NA
Santa Cruz	18	13	16	37	47	58

WHEN DO STUDENTS LEAVE?

More students who leave the UC system leave within the first academic year than any other year. This is true for freshman and junior entrants at all campuses except Davis, where first- and second-year attrition rates are equal for students who entered as freshmen.

While we did not conduct a formal study, our discussions with counselors and the staff of student services offices indicate that most students who formally withdraw during the quarter, reenroll for the next quarter. The students who leave a campus frequently complete the term but fail to reenroll during a subsequent quarter. This is consistent with our telephone survey results, which indicated that 60% of the students who leave a campus transfer to another institution, and students who plan to transfer would be expected to complete the quarter before leaving. We also found that the highest rate of attrition occurs between the spring and fall terms.

Our findings are consistent with Pantages and Creedon's (1978) review of the literature. They concluded that:

> the end-of-semester periods are characterized by stress and anxiety for the student. Apparently, the actual decision to drop-out is made when away from college, usually just after these stressful periods when feelings of relief are high, and the pressure (as well as the desire) to reenroll is low, because that is the time when noncollege influences upon the student are strongest.

Their conclusion is supported by our finding from the telephone survey that most students did not seek help from anyone at the University when deciding to leave.

We did not study the period during the quarter when students are more likely to leave. Our impression is that some leave within the first week because they do not seem to fit in; a fairly steady number of students withdraw at all times during the quarter for a variety of personal reasons; and most students encountering academic difficulties withdraw around the timing of mid-term and final examinations.

WHO ARE THE "HIGH-RISK" STUDENTS?

Background Factors

The published literature and other institutional studies suggest that the following factors are associated with a lower probability of graduating: poor previous academic performance, regardless of standardized test scores; low test scores, especially when coupled with weak academic performance; lack of a defined educational or career goal; and lack of involvement with the campus which may be related to working off-campus, living off-campus or trying to work more than 20 hours per week. We analyzed the data for five of the eight campuses whose data were available in a consistent format, to determine if any of the variables in our student record files would be good predictors of attrition in academic difficulty or of UC GPA's. Our findings were consistent with many other institutional studies. While there was a tendency for preadmission GPA's to be related to academic performance at the University, the background variables in our

student record files were not good predictors of attrition in academic difficulty.

However, this should not be interpreted to mean that background factors are not important, or that the University should adopt an open admission policy. As can be seen by reviewing the graduation rates for other universities (c.f., Appendix B), those universities that have had open admission policies like the University of Minnesota, the City University of New York, and the Ohio State University have much lower graduation rates. We also found that attrition rates for those students whose grades and test scores would not meet regular UC admission requirements, and therefore were admitted by special action, were approximately twice as high as for regularly admitted students. Because these students do not meet regular UC admission requirements, they are by definition "high-risk." Rather than focussing on those who leave the University, we were impressed by those students who were given this special opportunity and who succeeded.

While the correlations between background factors and UC GPA's at the campuses (multiple R = .49 to .56) were somewhat higher, the combination of variables in our files (i.e., preadmission GPA, age, level of entry, year of entry, ethnicity, sex, U.S. citizenship, admission status participation in special programs and first declared major) explained only about 30% of the variance in GPA's attained in UC courses. In other words, these background factors provide general indicators of the student's level of preparation, ability and motivation. However, the factors that seem to have the largest effect on the academic performance of students who meet regular admission requirements are associated with the "fit" between the student and the campus after entering the University. We are reminded of one of our first discussions with our faculty advisory committee, when Professor Trow said that any student who meets the University's regular admission requirements has the potential to graduate if he or she is motivated and will take advantage of the support services available.

If background factors are important, why did we find such a low relationship between the variables in our student record files and academic performance? One might speculate that the low correlation may be due to the fact that the University is fairly selective and the variability in entering characteristics among students tends to be restricted. Alternately, it might be the lack of uniformity in high school grading, the limitations of standardized tests, the variability in University courses taken by different students, the degree to which students apply themselves or the extent to which external factors, such as a family crisis, affect the student. Others would suggest that the low correlation is related to the extent to which the University reaches out to students, helping them to reach their full potential and to minimize the effect of external factors. Quite probably it is a function of all of these factors.

Quality of Student Effort and Involvement

The concept of "fit" recognizes that both the student and the University share the responsibility for a positive and successful educational experience. The University has a responsibility to select those

students who have the potential to succeed, and to provide the academic programs, support services and an environment that will contribute to the individual's educational and personal development. But, little will be gained if the student refuses to go to class, to take advantage of support services, or to get involved in the broader aspects of the University experience.

This concept of joint responsibility forms the basis for a recently published study that has attempted to measure the quality of student effort (Pace, 1980). Professor Pace's Quality of Student Effort Scales measure the extent to which students engage in higher level activities, frequently associated with the "serious" or highly motivated student. For example, the behaviors on the library scale range from routine and moderately exploratory activites (e.g., use of the card catalogue) to independent exploration (e.g., browsing in the stacks or developing a bibliography). Similarly, the course learning scale ranges from taking notes in class, to higher-level cognitive activities that integrate ideas and go beyond assignments. Students indicate the frequency with which they have performed the various activities on each scale, and the extent to which they feel college has helped them progress in several areas.

Pace (1980) found that the multiple correlations between background variables (age, sex, marital status, race and parent's education) and four composite outcome factors (personal/interpersonal understanding, intellectual competencies, general education objectives and understanding science) ranged from .14 to .36. Whereas, the multiple correlations between the quality of effort scales and the four composite outcome factors ranged from .62 to .68. In addition, 95% of the students from 13 diverse colleges and universities agreed with the statement, "If students expect to benefit from what this college or university has to offer, they have to take the initiative." Professor Pace concludes, "The results we have presented show that quality of effort is clearly related to degree of attainment--the greater the effort, the greater the gain." Although background factors may provide good indicators of a student's potential to succeed in college, the quality of what the student does in college is more closely related to academic performance than the background factors the student brings to college.

We should indicate here that we found several differences between the behavior of persisters and drop-outs after entering the University. Our telephone survey results indicate that persisters seem to be more involved in the broader aspects of the university experience. Persisters were more likely to have participated in orientation, worked on campus, lived on campus, worked no more than 20 hours per week, seen a counselor or advisor, and to have participated in extracurricular activities (e.g., belonging to a club or organization, or attending an athletic event).

Community College Transfers

As indicated in the previous section, we found that the academic performance of community college transfers has been declining. While our data did not permit us to determine the reasons for increasing academic difficulties, the findings of several other studies have shed some light

on several possible factors: 1) inadequate preparation in some transfer courses, 2) faculty contact, 3) "transfer shock," and 4) eligibility for admission from high school. For example, a review of the records for students who were dismissed from one of our campuses indicates that frequently they were given credit for having completed lower division course work at a community college but were not adequately prepared for the the University's upper division courses, particularly in the sciences. Another study (Lara, 1980) indicates that courses in the Community Colleges are less likely to require higher level cognitive activities of students. Using the Quality of Student Effort Scales, community college transfers were asked to indicate how frequently they had completed certain tasks, as a Community College student and as a University of California student. Approximately two-thirds of the transfers said they had frequently or very frequently "worked on a paper, project, or assignment where they had to integrate ideas from various parts of the course" while at the University. Only one-third of the transfers said they had done this frequently or very frequently for Community College courses. Similar results were obtained when students were asked if they had "summarized major points and information in your readings or notes," or "spent at least five hours writing a paper."

One might argue that at least a portion of these differences can be attributed to the fact that the upper division courses at the University are more likely to require these higher-level cognitive activities. However, the data from another study (Pace and Friedlander, 1979) indicate that these activities are required in both lower division and upper division courses at the University and that similar differences are found when lower division University students are compared with Community College students.

Lara's (1980) study of community college transfers produced another interesting difference with respect to faculty contact. He found that transfers who persisted at the University had approximately the same amount of contact with UC and Community College faculty outside of the classroom. However, drop-outs had much more contact with Community College faculty and very little contact with faculty after transferring to the University. The fact that the persisters were able to get as much faculty contact as they had had in the Community Colleges suggests that the important difference may be the nature of the faculty contact rather than the availability of the UC faculty. In other words, we might hypothesize that when some community college transfers did not receive from the University's research faculty the same type of faculty contact that they had received in the Community Colleges, their interaction with faculty dropped substantially and these transfers eventually dropped out.

Another possible explanation for declining performance is "transfer shock." We found that first-year attrition rates for transfer students were the same as first-year attrition rates for freshmen. In other words, the shock of transferring from the Community Colleges to the University is as great as it is for freshmen. However, this does not explain the declining performance because "transfer shock" is not a recent phenomenon. Knoell and Medsker (1964) found a similar pattern for California and several other states in a study of students who transferred from community colleges in 1960.

Similarly, Bird (1956) reported that community college transfers to the University of California had lower grades than "native" students in the first academic term, but the performance in the next three terms was very similar to that of "native students." This may have been due to the fact that a significant number of community college transfers drop out after the first term. Therefore, these students, who frequently have very low grades, would not be included in the computation of the GPA's in the second, third and fourth academic terms. Recognizing that "transfer shock" may be due to the differences in pace between the semester system and the University's quarter system, differences in competition in the classroom, differences between part-time and full-time enrollment, and differences in the size of the campus, we excluded any transfer students who dropped out during the first term (15% of the original cohort) and still found the differences in academic performance noted in Table 10. "Transfer shock" has occurred for 20 years, but these data suggest that the performance of those who survive the shock is no longer equivalent to "native" students.

Table 10

Comparison of the Academic Performance of Community College Transfers Who Survived First-Quarter Transfer Shock with Native Freshmen Who Became Juniors in 1975

	Native Freshmen Who Became Juniors	Community College Transfers	
		Eligible from High School	Ineligible from High School
Lower Division Grades	3.03	3.28	3.02
First Year Upper Division Grades	3.10	2.90	2.61
First and Second Year Upper Division Grades	3.15	3.01	2.79
% Graduating by Spring 1978	74%	71%	56%

Based upon data from Irvine, Los Angeles, Riverside, San Diego and Santa Cruz.

Data presented to the 1955 All-University Faculty Conference, (Birdsell, Buchanan, Hassenplug, Jackson, Pace, Vermeulin and Meriam, 1955) compared the academic performance of community college transfers with students who had become juniors after starting as freshmen at Berkeley. Those data indicated that 73% of the community college transfers completed the junior and senior years as compared with 79% of those upper class students who had started as freshmen at Berkeley. The report states that "the poor performance of junior college transfers is due almost entirely to the large number of junior college transfers who were ineligible from high

school." The cumulative upper division GPA's and two-year retention rates were similar for "native" students and community college transfers who were eligible from high school. However, the GPA's and retention rates were considerably lower for students who were ineligible from high school.

Therefore, we looked at graduation rates to determine if the difference in performance was still due to the transfers who were ineligible from high school. As can be seen in Table 10, the three-year graduation rates for community college transfers who were eligible from high school and survived the first-quarter "transfer shock" (71%) were similar to the graduation rates for "native" students (74%). As Table 11 indicates only those community college transfers who were eligible from high school and whose community college GPA's were between 3.2 and 4.0 had graduation rates (72%) similar to the average for all "native" students (74%).

Table 11

Three-Year Graduation Rates
for Community College Transfers Who
Entered the University of California in 1975

High School Eligibility	Community College GPA		
	2.4-2.8	2.8-3.2	3.2-4.0
Eligible	51%	60%	72%
Ineligible	42%	54%	60%

Based upon data from Irvine, Los Angeles, Riverside, San Diego and Santa Cruz. Unlike, the figures in Table 10 these data include students who dropped out in the first quarter.

In summary, we found that the Community Colleges provide access to the University for many good students who were not eligible to enroll directly from high school. Although this continues to be an important function under the Master Plan for Higher Education, it appears that many community college students eligible to transfer do not perform well in the University's upper-division courses. Differences in the level of cognitive activities required in lower division courses and differences in the kind of faculty interaction contribute to the declining performance of community college transfers. And, the data we have reviewed indicate that the gap between the performance of community college transfers and "native" students who become juniors is increasing. The implications of these findings will be discussed in the next chapter of this report.

Different Majors

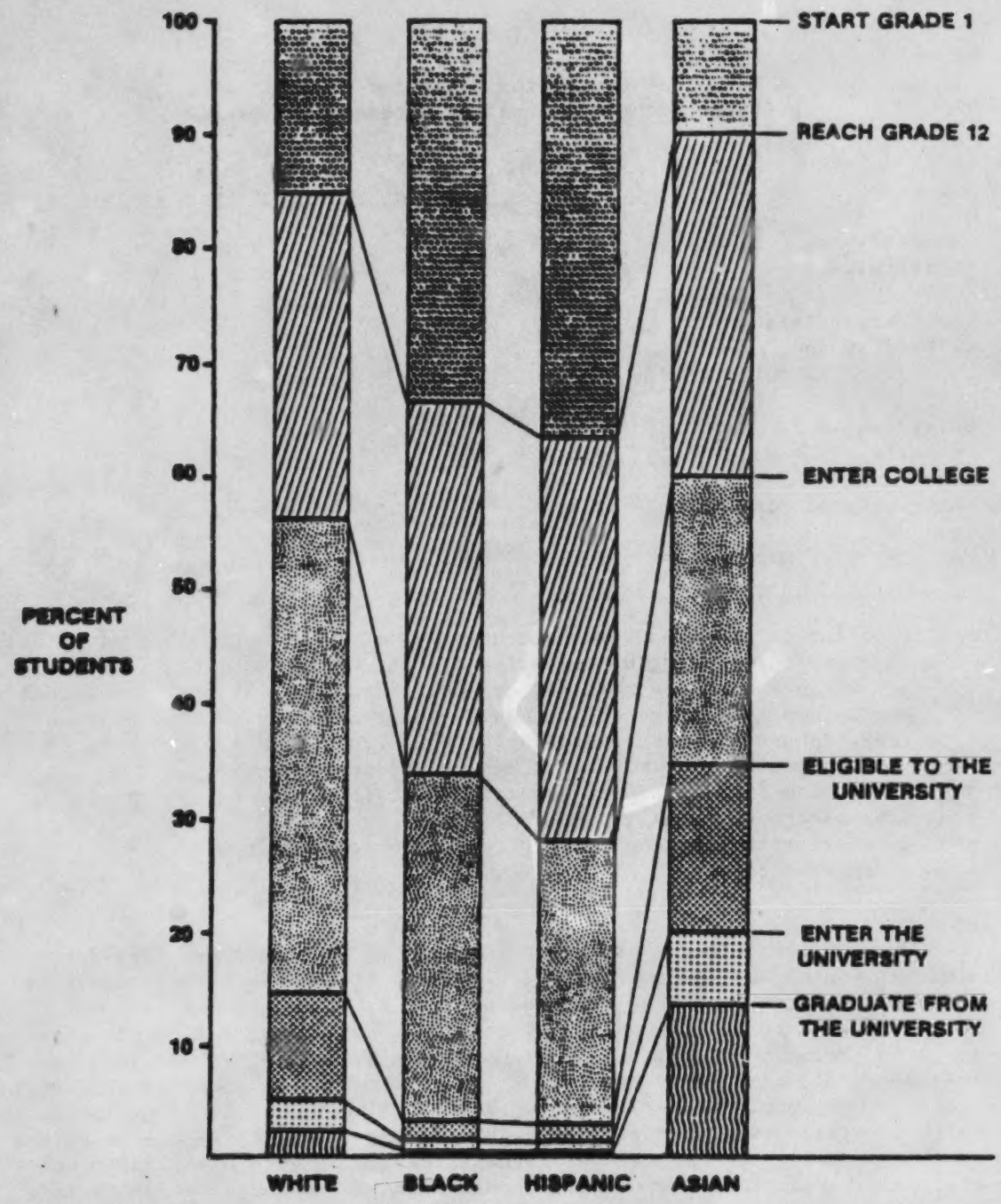
Some studies at other institutions have found higher attrition rates for undeclared majors and have suggested that freshmen be encouraged to declare a major. However, this finding may be an artifact of the way

the data were collected. Because most freshmen who do not complete the baccalaureate leave within the first two years, many of these individuals would have left before formally declaring a major. One study at the Riverside campus (Erfer, 1979) that controlled for this factor found that students who were initially undeclared but later selected a major had similar attrition rates to those who declared a major as freshmen. This would seem to support the present practice on our campuses of encouraging freshmen who are unsure of their educational or career goals to enroll in a variety of the University's broad course offerings before formally selecting a major.

Even after declaring a major, undergraduate students frequently change their field of interest. Approximately one-half of the students with a declared major formally change their majors 1-3 times before graduation. Therefore, researchers will find different results when different definitions of "major" are used. For example, if we define a biology major as a student whose first declared major is biology, then we will find higher rates of attrition than if we count only those whose last selected major was biology. Even using a consistent definition of "majors" we found different patterns for different campuses and variation in rates over time. Analyzing these data for particular majors did not provide useful information for this systemwide report. However, individual campuses may wish to pursue this matter further.

Different Ethnic Groups

As with the previous discussion of attrition by major, the analysis of attrition rates among ethnic groups is not as simple as it might seem to be on the surface. As stated in an earlier section, the background factors in our student record files including ethnicity explained a very small amount of variance in academic performance among students. However, like studies at the University of Michigan, the University of Delaware, the University of Maryland, and the California State University and Colleges, we found that Black and Hispanic students do have somewhat lower graduation rates than Caucasians, with Asians having the highest rate (c.f., Table 12). Similar findings were reported in a national study by Astin (1975) and a study of the twelve western states by the Berkeley Office of the Educational Testing Service (ETS) for the College Board (Tibby, Hirabayashi, Olson and Peterson, 1978). As can be seen in Figure 1, the pattern of differences in college graduation rates can also be found in the probability of graduating from high school and going to college.



FLOW OF FRESHMEN INTO HIGHER EDUCATION

Figure 1

Sources:
U.S. Commission on Civil Rights (1971),
U.C. Systemwide Office of Outreach Services (1978) and
data collected for this study that are shown in Table 12.

Table 12

Five-Year Graduation Rates for Students of Different Ethnic Groups Who Entered as Freshmen

	Year of Entry	Black	Hispanic	White	Asian
University of California*	1972	41	43	52	67
California State University and Colleges	1973	14	16	34	33
University of Delaware	1973	25	**	64	**
University of Maryland	1974	25	**	48	**
University of Michigan***	1975	30	30	51	52

* Data for UC campuses were pooled to get enough students in each ethnic category for meaningful comparisons. The UC figures in this table do not include students admitted by special action. When students admitted by special action are included, the graduation rates decline by less than one percentage point for White and Asian students and about three percentage points for Black and Hispanic students.

** Either the figure was not reported for this ethnic group, or else it was based upon a small number of students.

*** Data presented for the University of Michigan are four-year graduation rates.

We also found that a greater percentage of those Black and Hispanic students who do not receive the baccalaureate leave in academic difficulty. This is consistent with the findings of a study at one of our campuses that indicated that although 80% of the Black and Hispanic students expected to go to graduate school, 50% of them, as compared with 10% of Caucasian freshmen, felt that their high school education had not prepared them well, and that they would need remedial work in English, mathematics and science. While our Task Group did not pursue this matter in depth, we are concerned about the quality of high school mathematics and science programs in general, and particularly, at those schools that send minority students to the University. Appendix D contains a summary of visits by Mare Taagepera, a lecturer in the Department of Chemistry at UC Irvine, to 10 Southern California high schools. She found that those high schools with a larger percentage of minority students have the lowest enrollment in science courses. Those minority students who do take these courses frequently have poor study habits and cover less material than students in other high schools. Also, a study by Frank and Cesa (1980) indicates that a higher proportion of Black and Chicano students come from high schools

with larger than average differentials between high school and UC GPA's.

In general, the amount of satisfaction or dissatisfaction and the other reasons for staying or leaving the University of California are similar for all ethnic groups. While many students from all ethnic groups feel that classes are too large, that faculty are inaccessible, that the administration is overly bureaucratic and that other students are hard to meet, these feelings of separation and alienation seem to be more intense for those whose culture may be different in many ways from that of the majority. Our interviews indicated that many minority students feel alienated from other students as well as from the institution.

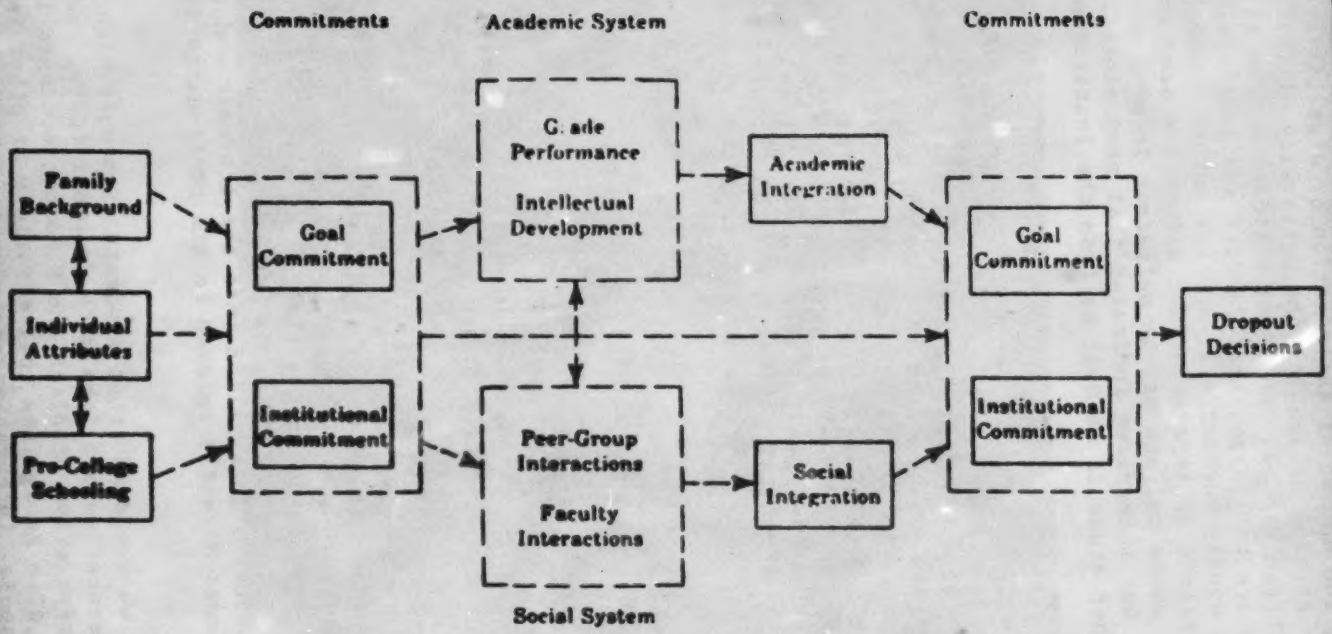
The changing demographics of California will probably result in an increasing number of minority students entering California's colleges and universities. As a result, a joint UC/CSUC conference has been held to address some of the special problems that minorities experience in our institutions of higher education in California and some of the reasons for higher attrition rates at all levels of the educational process. In addition to the proceedings of the UC/CSUC conference, those interested in this topic may wish to consult the report of the UCLA Faculty Committee on Cultural Diversity (Goldschmidt, Curtis, Lara, Mitchell-Kernan, Mayeda and Snyder, 1979) and the Report of the Retention Task Force of the Committee on Minorities in Engineering for the National Research Council (1977).

WHY DO STUDENTS LEAVE?

Academic and Social Integration

We have found Tinto's (1975) theoretical model to be a useful way of thinking about the phenomenon of dropping out of college. Tinto's conceptual schema is portrayed in Figure 2. Tinto argues that a variety of background factors have an impact on performance in college and contribute to the individual's degree of goal and institutional commitment. Those individuals who have high aspirations (e.g., expect eventually to complete graduate programs) and who have a strong commitment to attend this particular institution will have a higher probability of persisting. "Given individual characteristics, prior experiences, and commitments, the model argues that it is the individual's integration into the academic and social systems of the college that most directly relates to his continuance in that college" (p. 96).

As a corollary we would add that students with very high expectations and low levels of preparation are likely to drop out (c.f., the discussion of aspirations and preparation of Black and Hispanic students in the previous section). Tinto also recognizes that a variety of other factors external to academic and social integration can affect persistence, when he says, "A person will tend to withdraw from college when he perceives that an alternative form of investment of time, energies, and resources will yield greater benefits, relative to costs, over time than will staying in college" (p. 97).



A conceptual Schema for Dropout from College

Figure 2

Reprinted with permission granted by the American Educational Research Association from Tinto, V., "Dropout from Higher Education: A Theoretical Synthesis of Recent Research." Review of Educational Research, 1975, 45 (1), 89-125.

As we noted earlier, the University's admission standards result in a group of entering students with strong academic backgrounds, suggesting relatively high graduation rates. Moving to the next stage in Tinto's model, UC students enter with very high levels of goal commitment, another factor suggesting high graduation rates. Approximately 85% of UC freshmen expect to complete graduate work as compared to the national norm for research universities of 65% (Astin, King and Richardson, 1978). On the other hand, UC students, particularly those at the smaller campuses, have less of a commitment to graduate from that campus. As indicated in Table 2, from 11 to 22% of the freshmen at the smaller UC campuses say that chances are good that they will transfer to another college, as compared with a national norm for research universities of 7% (Astin, King and Richardson, 1978). We suspect that this can be attributed to the fact that it is relatively easy to transfer within the UC system and that there are many colleges and universities available to students in California. Therefore, applying Tinto's theoretical framework to the University of California, one would expect, and indeed we found, a significant number of students transferring from smaller to larger campuses and relatively high graduation rates.

Tinto's concepts of academic and social integration also seem to apply to the University of California. Approximately one-half of our students who leave the university without graduating (leave a campus without transferring to another UC campus) are in academic difficulty. The figures are somewhat less than 50% at Berkeley, Davis and San Diego, and somewhat higher at Irvine and Los Angeles. Since most of the students who get into academic difficulty have had a history of being good students, the important question is, "Why do they get into academic difficulty?"

Tinto would argue that reasons why students leave are related to the extent to which these students become academically and socially integrated into the campus community. Based upon our telephone interviews we estimate that approximately 40% of attrition is associated with a lack of academic integration (e.g., poor preparation, low motivation, inadequate study skills, inappropriate choice of major, poor course selection, sporadic class attendance, change of interest to a major not available at that campus,) another 10% is related to social factors (e.g., alienation, interpersonal relationships), and the rest can be attributed to what Tinto calls "external factors" (e.g., poor health, family crises, financial problems, employment opportunities). For some students the combination of these factors results in poor academic performance, but many times the student voluntarily withdraws while still in good academic standing. For example, poor health could result in poor academic performance or withdrawal from the University while still in good academic standing. For other students the commitment to completing the degree and the commitment to that campus is so strong that the student makes a special effort to overcome the factors that would have led others to drop out.

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1. Based upon a study by Pace and Rosenstein (1978) we estimate that more-than 50% of the UC freshmen will eventually enter graduate school at some college or university.

Financial Aid and Employment Opportunities

Because such a large percentage of UC attrition can be attributed to to "external factors," we looked carefully at the personal and financial problems reported by students. Within the category of "external factors" the majority of responses could be labeled "personal reasons." Some students had been ill; others had family problems. Many just wanted time to decide what they wanted to do with their lives. Within Tinto's framework, these individuals were reassessing their educational, career and personal goals. Approximately 60% of the former students we interviewed, indicated that they planned to return to the campus or transfer to another college or university. Most of the others were unsure about their future plans. In other words, many of those we interviewed were stop-outs, rather than drop-outs, from higher education.

Financial and employment factors were also given as reasons for leaving the University. Even though less than 10% of our students indicated that the relatively low cost of attending the University of California contributed to their decision to come to a UC campus, more students now indicate that they are concerned about financing their education than a decade ago. More than one-half of the persisters were working, and 20% of the drop-outs said they left because of employment opportunities or because they could not afford to stay in school. Student fees are not the only costs of a university education. Other costs, such as housing, transportation and earnings foregone, have increased dramatically over over the past decade. In fact, the limited availability of reasonably priced student housing is a major problem at several UC campuses.

While the number of students who cite cost as a factor in leaving the University is not insignificant, the numbers would be even higher if it were not for several important factors. First, both the State and Federal Governments have increased the amounts of financial aid available to students. Second, the University annually allocates $30 million of its own funds for student aid. Third, the UC campuses have created on-campus employment opportunities for students who must work. The combination of these three factors has resulted in more than 40% of UC undergraduate students receiving some kind of financial aid or employment averaging approximately $2,000 through the University. We did not find significant differences in the percentage of persisters and drop-outs receiving financial aid, nor did we find differences in the type of aid received.

What Students Would Change

As a portion of our telephone survey, we also asked students what they would change in the University. In general, we found students and former students very pleased with the University as did the Systemwide Office of Outreach Services (1979), which found that 9 out of 10 students in their first year were satisfied with the UC experience. Some students who participated in our telephone survey indicated that they would like smaller classes, more parking and more low-cost housing. However, as Hackman and Dysinger (1970) warned, these should not be considered reasons for dropping out because "almost all of the problems reported . . . are shared by large numbers of students who do not withdraw." We frequently found

that an equivalent or even greater percentage of persisters were dissatisfied with these aspects of the University. That is not to say that these are not real problems or that no action on the part of the University is required. Rather, these problems are not the primary reasons for dropping out.

There is no simple answer to why students leave before completing the baccalaureate. A large number of psychological, sociological and economic factors contribute to attrition. These factors often interrelate in ways that make it very difficult to isolate causation. When we asked students why they left, they frequently gave several reasons, and found it difficult to say which had been most influential. We are also aware of the tendency for individuals to construct rationalizations after the fact that help them to maintain their self image. For example, Weiner, Russell and Lerman (1979) conclude that attributing poor performance to a lack of ability leads to feelings of incompetence; and attributing poor performance to a lack of effort produces feelings of guilt or shame. Therefore, many of the students who attributed their leaving the University to social or "external factors" may have really been avoiding feelings of incompetence, guilt or shame. Undoubtedly, a better understanding of the effects of motivation on performance would shed additional light on the reasons why students leave. However, a deeper probing of such psychological factors went well beyond the scope of this study. In the final analysis, the degree of commitment to the campus and to the baccalaureate may make the difference between those who will leave and those who will persist.

WHAT ARE WE DOING ABOUT IT?

What Should or Can We Do?

Before changing existing programs or proposing new retention programs during a period of limited resources, we should ask ourselves whether there is a general attrition problem. After all, UC graduation rates seem to be similar to or higher than other public universities. Can we really expect more than 6 out of 10 of our freshmen to graduate in five years, or more than 8 out of 10 of our freshmen to achieve the baccalaureate eventually from some college or university? Recognizing that attrition may be appropriate for many students, some might question whether we should try to reduce attrition.

The problem with stating the issue in this way is that it becomes too broad to answer. It may be more productive to ask a series of more specific questions, which each campus must address. In general, attrition rates are higher for some groups of students (i.e., Black and Hispanic students and community college transfers). Also attrition rates are rising at Irvine, Los Angeles and Santa Cruz. Some will find these attrition rates unacceptably high and indicative of a costly waste of resources and human potential. Others will say that attrition rates are likely to increase as the preparation of eligible students continues to decline. Accepting for the moment the conclusion that attrition rates are too high for some groups of students and on some campuses, an even more important question may be, "Is there anything we can do about these selected instances of high and rising attrition rates?"

As we pursued this question, we found that the University was engaged in two major types of activities: 1) efforts to improve articulation and the preparation of students before they enter the University, and 2) programs at the University designed to improve the quality of student life and increase retention.

Efforts to Improve Articulation and Preparation

Efforts to insure communication and articulation with the other segments have had a long history in California. The first efforts to improve articulation began with the Junior College Committee, which was established by UC President Robert Gordon Sproul in the 1930's. Later, representatives from the California State University and Colleges system, the independent colleges and universities, and the high schools were added to a formal structure called the Articulation Council. The Articulation Council sponsors the Articulation Conferences, which are intended as a forum for sharing information and identifying articulation problems. In addition 22 special liaison committees have been established in specific areas.

While the Articulation Council, the conferences and the liaison committees provide a useful structure for sharing information, they have had limited effectiveness in dealing with difficult problems. We will discuss this matter further in the next chapter and offer recommendations to improve communication and articulation with the other segments.

Some of the University programs to be discussed in the next section can provide useful short-term strategies for responding to the problems of poor preparation, the long-term strategy must be to work with other educational institutions to insure that students are adequately prepared before they enter the University. As indicated earlier, declining SAT scores and a large percentage of students who are required to take a preparatory course in English composition indicate a decline in verbal skills. In response the Bay Area Writing Project was started by the Berkeley faculty to improve the academic preparation of new students. Now expanded to the California Writing Project, this program brings UC faculty together with some of the best high school and community college teachers of English. The goal of the program is to improve the quality of writing by sharing information about effective teaching techniques. Also, plans are being made to give the diagnostic test for English composition during the junior year in high school, so that students found to be deficient can take the remedial course work before coming to the University. Similar programs are now being started on a much smaller scale in mathematics and geography.

University Programs and Services

We found that other colleges and universities across the United States with higher attrition rates have begun a large number of interesting programs designed to increase retention. Some of these programs are directed at improving academic integration (e.g., increased contact with faculty outside of the classroom, better orientation, improved academic

advising and career counseling, and new intervention programs for "high-risk" students). Other programs attempt to increase social integration (e.g., special programs for commuter students, expansion of clubs and special interest groups). Although these programs are staffed by enthusiastic individuals, most had not been formally evaluated. Given the complex interaction of a large number of factors as noted in the previous section, we suspect that it would be almost impossible to isolate the independent effects of any of these programs even if an overall increase in retention could be demonstrated. Therefore, we approach this section with some caution, recognizing the frequent failure of compensatory education and other social programs.

Within the University of California, we found many student service programs designed to improve the quality of student life, which may also have an effect on the retention of students. These services range from intramural athletics to student health, and from experiential education programs to psychological counseling. Sometimes these programs have been integrated to improve the effectiveness of these services. For example the Office of Academic Support and Instructional Services (OASIS) combines instructional improvement and learning skills programs at San Diego. Any attempt to evaluate formally the effectiveness of these programs and services was well beyond the scope of our Task Group. However, we will describe in the following sections several programs that seem particularly relevant to the topic of retention.

Summer Programs

Recognizing that high school programs have not prepared many eligible students for the academic rigors of the University of California, special academic programs are now being offered by the University during the summer months to facilitate academic and social integration. Funded largely by financial aid and student affirmative action resources, the Summer Bridge Program at Berkeley, the Special Transitional Education Program at Davis, the Summer Bridge Program at San Diego, and the Freshman Summer Program at UCLA permit "high-risk" students to take one or two foundation courses in a supportive atmosphere of academic counseling and tutoring.

Orientation

Several campuses are changing their orientation programs to combine a pleasant social experience with a more effective introduction to the academic programs of the campus. At UCLA students complete an academic planning exercise during orientation that helps them to clarify their educational and career goals, to assess their strengths in relation to these goals and find out where to go to get help in correcting those weaknesses that may prevent them from achieving their goals. Santa Barbara, Davis and Stevenson College on the Santa Cruz campus have started parents' orientation programs, recognizing the importance of parents' impressions in the retention of new students and in influencing the parents of prospective future applicants.

Advising

Along the same lines, programs are available to help students during their first year in the University when attrition is the highest. Several campuses advise students to take a light course load during the first quarter. Special counseling and tutoring services are available for financially and educationally disadvantaged students. For example, upper division minority students serve as peer tutors for other minority students at Irvine and several other campuses.

Academic advisors provide one of the most important academic support services; and yet we found that students and former students gave this one of the lowest ratings of any of the support services. In another recent survey conducted by the Systemwide Office of Outreach Services (1979), students indicated that this was the service most in need of improvement. Students frequently complain about delays in getting to see an advisor, the short amount of time available for the meeting, the bureaucratic attitude and the focus on being a catalog interpreter rather than an academic counselor. We suspect that these concerns are magnified by the fact that many students never see an advisor unless they are in academic difficulty.

Useful reports on academic advising that explore these concerns in greater depth have been prepared at Davis, Irvine, and Santa Barbara. The problems identified in these reports include a lack of resources, lack of recognition and reward for advising, inadequate training and the failure to develop a sense of professional community among staff counselors. We might also add that many students today are very career-oriented.[1] These individuals want an advisor who can combine academic, career and life counseling--a combination that many of our faculty and professional staff are not prepared to provide. We strongly support the efforts at several campuses to come to grips with these problems. We suspect that the most effective solutions will properly utilize faculty advisors, staff counselors and students serving as peer counselors, each in an appropriate role. Adequate training and close coordination is essential. Also, advising programs should recognize the special needs for certain groups of students, such as older, undeclared and special action students.

One innovative program at Santa Barbara designed to improve access to advising utilizes students as peer advisors in certain on-campus and off-campus dorms under the supervision of the College of Letters and Sciences. The Riverside campus has the Assistance, Counseling, and Encouragement (ACE) Program for students on academic probation. These students are advised to take a reduced course load and in turn spend additional hours in the Learning and Study Skills Center working on vocabulary development, reading, mathematics and general study skills.

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1. The ACE Freshman Survey results for one campus indicate that the percentage of students who said it was essential or very important to develop a meaningful philosophy of life declined from 81% to 62%, while those saying it was essential or very important to be financially well off increased from 32% to 60% over the past seven years.

Curriculum Changes

Other changes have had a direct impact on the curriculum. Several campuses have changed the introductory English sequence in recognition of the fact that more students are deficient in writing skills. At UCLA the discussion sections in introductory mathematics have been increased from two to three hours per week, because too many students could not grasp the concepts in the shorter period. The Davis Mathematics Department has added new discussion sections, has provided study halls for students in introductory courses and has encouraged undergraduates to study together.

Honors Programs

Although Astin (1975) advocated the establishment of honors programs because "academic boredom" is one of the most frequent reasons for dropping out, we found from our telephone interviews that very few University of California students were bored. To the contrary, the pressures of academic competition were more frequently cited than boredom by the students we interviewed. Nonetheless, some highly able individuals do want an even more intense intellectual experience in college. The recruitment and retention of these individuals is also very important to the University. Therefore, honors programs that provide special courses and a sense of community for the very best students are available on several campuses.

Additional On-Campus Housing and Jobs

Yet another category of changes includes those administrative actions designed to provide better services to students. Several campuses are proposing to build additional dormitories and parking lots. Recognizing that more students are working to finance their education, UCLA has developed a program to expand on-campus student employment opportunities. Departments that create new educationally or career-related student jobs receive funding for 60% of the salary costs of the new position. Unlike the Federal Work Study Program, any student can apply for these jobs, not only those who can demonstrate financial need.

Planned Leaves

Recognizing that many students voluntarily stop out to pursue other activities that may assist in clarifying educational goals, provide job opportunities and practical experiences away from the campus, allow time for maturation, introspection, and the solution of personal problems, and enhance the prospect of successful completion of an academic program, Planned Educational Leave Programs (PELP) has been established at Davis and Santa Barbara. Students participating in PELP are eligible for some student services while they are officially "on leave." For example, they can receive counseling and advising to help clarify educational objectives or solve personal problems. At the conclusion of the planned leave, the student is guaranteed readmission and every effort is made to facilitate and simplify the return to the University.

In summary, we have found selected instances of high and rising attrition at some campuses, for some ethnic groups, and for community college transfers who were ineligible from high school or who had low transfer GPA's. We also found that the University has intiated several activities to improve articulation and preparation and that the campuses have begun several programs to improve the quality of student life and hopefuliy also to improve retention. The following section includes our recommendations for further changes that might also improve retention.

CHAPTER III

DISCUSSION AND RECOMMENDATIONS

Throughout higher education--from the institutions with "open admission" policies to the most prestigious universities--there is general concern about the level of preparation of new students. Data presented in Appendix C indicate that the University of California has not escaped this nationwide phenomenon. This problem, as it affects the University of California, is not limited to students admitted by special action, and it is not the result of lower admission standards. The problem relates to the level of preparation of fully eligible students in the upper 12-1/2 percent of the California high school graduating class.

Given the problem of declining preparation, there appear to be five responses the University could consider: 1) lower our performance standards for achieving the baccalaureate, 2) raise admission requirements, 3) allow more students to "flunk out," 4) work with the high schools and Community Colleges to improve the preparation of students before they enter the University, and 5) offer preparatory programs and support services at the University to compensate for deficiencies.

The lowering of our standards for the baccalaureate is patently unacceptable on the surface and counterproductive in the long-run. This action would lower the value of the UC degree and would result in a disservice to those many excellent students who are well-prepared. Also, such an action probably would not improve retention because it would reduce the pressures for better preparation and because it is the quality of UC academic programs that attracts and holds our students.

The second alternative would be to raise admission requirements. However, the University of California as a state-supported institution has an obligation to serve a segment of the population, and does not have the flexibility to raise admission requirements that private institutions have. According to the Master Plan for Higher Education in California, the University is to provide access to the top 12-1/2 percent of the high school graduating class.

If the University cannot raise admission requirements and if we are unwilling to lower our standards for the baccalaureate then, all other things being equal, attrition will probably increase. In addition to the negative effect on the self-image of these individuals, this would unfortunately place the full burden for the failure of the schools on the shoulders of this generation of young people.

Therefore, we endorse the fourth and fifth alternatives that, as described in the previous chapter, have already been adopted by the University. The most effective long-term strategy is to insist that the curriculum of the high schools and Community Colleges include the academic content and the higher-level cognitive activities (e.g., analysis, synthesis, integration of facts, concept formation) that will prepare

their best students for the University of California. Over the short-term, unless we choose to abandon this generation of young people, the University must offer the preparatory programs and support services to compensate for these deficiencies.

We believe that within certain limits, the University can compensate for poor preparation. Students with ability and the determination to succeed can still graduate even though they may not be well-prepared in some areas. Special support services are available at each of the campuses and preparatory courses in English, mathematics and other fields can be taken by students who were not well-prepared by their high school. Also, within the constraints of normal progress, students who may not be well-prepared in certain areas can take fewer units, or withdraw from a particularly difficult course and take it again in a subsequent quarter. All of these actions may lengthen the time to degree (c.f., Table 3); but the individual can still graduate if he or she is motivated and takes advantage of academic support services such as the learning skills center.

Therefore, we have concluded that the University must get into a business that is not properly its business if it is to get out of the business once and for all. The following discussion and recommendations address several aspects of these two major categories of activities. The first section discusses the changes that have occurred in the high schools and Community Colleges, and recommends several actions to be taken jointly by the administration and the Academic Senate. The second section discusses programs offered by the University and offers several suggestions for consideration by the Academic Senate and the administration.

EFFORTS TO IMPROVE ARTICULATION AND PREPARATION

High Schools

For much of the first half of this century there was a close relationship between the University of California and the high schools. Many of the administrators and teachers in the public and private schools received their training at the University. The University actually accredited the high schools, and students were admitted to the University on the basis of the recommendations of the principals of accredited high schools. Also, the Systemwide Office of Relations with Schools produced academic performance reports comparing performance in high school with performance at the University. Over time much of the teacher training function shifted to the California State University and Colleges, and accreditation became the responsibility of the Western Association of Schools and Colleges. Admission requirements became more formal, and the Systemwide Office of Relations with Schools was decentralized. In the Spring of 1978 the production of academic performance reports by the University was terminated, and the Joint Administration-Academic Senate Task Force on Academic Preparation in California High Schools and Community Colleges was appointed to advise the University on the provision of information to other segments on their effectiveness in preparing students for University-level work.

1. We support the recommendations of the Joint Administration-Academic Senate Task Force on Academic Preparation in California High Schools and Community Colleges.

That Task Force recommended that the University reinstitute the provision of non-student-specific reports to high schools and community colleges on the academic performance of their graduates in the University.

In our discussions with representatives from high schools and community colleges, some individuals have indicated that the reinstitution of these summary reports would help to identify general problems, but will not help to find solutions. To know that many of their students are not performing well in University-level courses does not help them to isolate the reason for the difficulty (e.g., a course that does not cover enough material, or a course that students are not taking). Student-specific reports would permit the schools to review their own records for the students who are not doing well at the University. We understand that the Joint Task Force did not recommend student-specific reports because they had been informed that this would be in conflict with the Student Privacy of Information Act. At present the possibility of asking students to sign a waiver to permit the release of their records to the previous institution attended is under discussion. The Joint Task Force also recommended that:

> The University should continue to develop its cooperative efforts with the high schools and community colleges of California to strengthen the preparation of students for the University. It is proposed that:
>
> a) The University Outreach Offices continue to increase the awareness of counselors, students, and parents of the additional preparation required for specific fields of study as well as the minimum eligibility and course requirements for regular admission to the University.
>
> b) The University should develop procedures to recognize, commend, and encourage, first, those high schools and community colleges of California whose graduates perform particularly well within the University--top 15% in performance--and second, those schools whose instructional and grading policies are particularly accurate predictors of performance in the University as indicated by GPA differentials--top 15% in list of GPA differentials.
>
> c) The University should develop programs to work cooperatively with those schools whose graduates have academic performances in the University which fall in the lower thirty percent to strengthen the preparation of their students for University-level work.

> The Board of Admissions and Relations with Schools (BOARS), through the campus Admissions Committees and Outreach Offices, should utilize the full potential of the processes for certification of courses for satisfaction of entrance requirements or transfer credit to work cooperatively with high schools and community colleges to improve the effectiveness of their courses in preparing students for University-level work.

While we have a general concern about the quality of preparation in the high schools, we are particularly concerned about the quality of preparation in the high schools from which the University's underrepresented ethnic minority students graduate. In Chapter II we indicated that those high schools with a larger percentage of underrepresented ethnic minority students have the lowest enrollment in college preparatory courses. Those underrepresented ethnic minority students who do take these courses frequently have poor study habits and cover less material than students in other high schools. Also, we have reason to believe that the high school grades, relative to the quality of preparation, may be inflated. The University must insist on the highest standards of academic preparation or else the underrepresented ethnic minority students admitted as a part of our Student Affirmative Action programs will pass through a revolving door.

Community Colleges

There has been a fundamental change in California's tripartite system of higher education over the past 30 years. As stated in a recent publication (Brawer, 1978) by the Center for the Study of Community Colleges and the ERIC Clearinghouse for Junior Colleges,

> Community colleges have changed in recent years. Increased enrollments in career and vocational programs, elimination of many requirements for transfer students, the attraction of newer disciplines in the social sciences and in other fields, and a widespread concentration on the community at large and their practical and/or recreational demands have altered both the constitution of student bodies and the program offerings.
>
> Changing characteristics of the student population are worth noting. The first of these changes concerns the steady increase in the proportion of two-year college students enrolled in occupational programs; from 13% in 1965 to approximately 30% in 1970 to nearly 50% in 1976.
>
> The second important change that has occurred in recent years has been the increase in the number of students enrolled in non-credit courses or programs. According to a recent American Association of Community, Junior, and Technical Colleges report (1976), over 1.5 million persons participated at that time in courses or programs that did not carry credit (for example--civic, cultural, community interest, and recreational courses).

> The third major change concerns the composition of the student population itself. As of 1974 over half (56%) of the students in two-year colleges were enrolled part-time, and over 40% were over age 21, an increase of 10% in the enrollments of this age group since 1970. Part-time and adult students have been characterized frequently as having little interest in taking courses taught as foundation blocks for further study.

We recognize that the role of the community college has changed and that the transfer function is now much smaller than it once was. According to Sheldon and Hunter (1980) 57% of the students in the California Community Colleges are in vocational programs, and one-half of those who were not in vocational programs indicated that they did not enroll for credit. Of 1.1 million students enrolled in California Community College courses for credit, less than 6,000 students transferred to the University of California in the Fall of 1979. In fact, the University is now sending more students to the Community Colleges than they send to the University. In the Fall of 1979 10,000 students entered the Community Colleges after last attending the University of California.

It is true that more than 5,000 of these had already completed the baccalaureate and were probably taking a community college course to pursue a particular interest; but that is just the point. Most students today plan to attend a community college occasionally to learn something of interest to them. Sheldon and Hunter (1980) found that the modal number of courses taken at the Community Colleges is one, and the mean is less than three. Students can do this because more than 90% of community college courses have no prerequisites. In other words, the curriculum is more or less lateral, as opposed to a linear curriculum that builds upon previous courses toward the ultimate completion of a program for the AA degree and eventual transfer to a four-year institution. Those who may not have been aware of these changes in the community colleges will find Lombardi's (1979) review of national trends and Sheldon and Hunter's (1980) study of students in California's Community Colleges of considerable interest.

Consistent with the fact that community college transfer programs have become smaller is the tendency for more high school students to choose the University of California. In 1975 23% of the high school graduates who were eligible for admission to the University of California chose to go to a community college. The data from our Student Choice Task Group indicate that the percentage of UC eligible high school students who say their first choice is to attend a community college is now only 13%. So, more students want to come to the University of California directly from high school rather than through the community college transfer route. Because fewer students have been transferring from the Community Colleges, both CSUC and UC have the capacity to admit these students directly from high school.

Unfortunately, this may have a further downward spiraling effect on the size and nature of transfer programs in the Community Colleges. As fewer UC and CSUC eligible high school students enter the Community Colleges, the most academically able students are removed from the transfer classes. This lowers the level of competition in the classroom, lowers the level of text that can be used and the amount of material that can be covered, and lowers the norm for grading purposes. Because the decline in academic

performance of community college transfers occurred during the early 1970's (c.f., Tables 5, 8, and 9), several years before UC and CSUC began admitting more of the eligible students directly from high school, we might expect the performance of community college transfers to decline even further in the next few years.

For all practical purposes, if we continue on the present downward spiral, many Community College campuses will not articulate with UC campuses because they will not be able to afford to offer the vocational and community service programs to their students as well as the breadth and quality of program that will prepare students for the University of California. And, we are clearly headed in that direction. In 1978, 20 out of 72 Community College districts sent fewer than 20 students to the UC system.

Further restriction of the flow of well-qualified students from the Community Colleges to the University would have several serious implications:

1. It would change the very nature of the Community Colleges, with a deleterious effect on faculty morale.

2. It would result in more of our students entering directly from high school with a consequent demand for lower division courses that we do not have the resources to provide.

3. It would restrict the options available to students in these districts--students who most likely will come from educationally and financially disadvantaged backgrounds.

And yet, we cannot afford to ignore the realities of what Lombardi (1979) calls "the decline of transfer education."

2. Therefore, we recommend that the Chancellors in cooperation with the faculty make every effort to improve communication and articulation with the community colleges in their local areas.

Over the past three decades the Articulation Council has evolved as the primary link among the segments. The Articulation Council, the conferences and the liaison committees provide a useful structure for sharing information and identifying problems. However, without a permanent staff to provide information on trends in the numbers and academic performance of transfers, the effectiveness of that structure is limited. Too frequently anecdotal instances provide the only source of information about problems, and the focus is largely on procedural matters.

Another approach, which we feel would be effective, would be to assign one person on each campus with the responsibility for improving relations with the colleges in the local area. That individual should identify issues, involve appropriate administrators and faculty from both segments, provide information that will focus the discussion and work toward resolving the problems of articulation in that region of the state. Such a local approach is important because with more than one hundred community colleges in California, each with programs designed to meet community needs, specific regional plans would be far superior to broad statewide generalizations.

The following two quotes from students who participated in Lara's (1980) study and who had attended two quite different community colleges illustrate this point:

> "The majority of students at my community college do not consider the demands of obtaining a formal education. It does not mean daytime TV soap opera in the student lounge, loud music from radios outside classrooms and the constant milling of students wasting study time around the cafeteria all day. The community college is lost in extracurricular activities. There is no encouragement or push to make students understand that college is not a party. There is a widening gap between the community college and the University. My community college is not a college preparatory school. It leans more toward vocational training. It is difficult to go from a scantron exam to an analytical term paper. I have rarely met a transfer student from my college who did not nearly flunk out or transfer out of the University. None of us were prepared for the difficult transition to a serious education. I myself received "A's" and "B's" at my community college. At the University I flunked out—the most humiliating and crushing experience of my life. And believe me, color is not relevant."

> "I really don't understand what the issue is. I was more than adequately prepared for the University. If anything, I found the University less difficult than my community college experience. There is a little difficulty in the transition from a semester calendar to a quarter calendar and an adjustment in the living arrangements and a geographic transition. Aside from these minor difficulties, there is nothing. Students at the University are more serious about their studies and take more advantage of the library than some students at the community college. However, all of the people I know that transferred from my community college had no real difficulty. I loved the University. I am now a very vocal alumnus. I really don't understand what the issue is."

The new regional plans must recognize this diversity and must admit that many of the community colleges have changed dramatically in the last two decades. We must realize that the demographic trends, the changes in student interest and the reductions in State funding have resulted in a downward spiral that threatens the transfer function at many community colleges. Therefore, we strongly support the development of regional plans based upon the realities of the present rather than our hopes of the past.

UNIVERSITY PROGRAMS AND SERVICES

Academic Senate

The faculty have frequent contact with students and are responsible for the academic programs that attract the students in the first place. As such, they play a principle role in retention. Even though ours was an administrative Task Group, our report would not be complete without emphasizing that role and offering suggestions for consideration by the Academic Senate.

The outstanding reputation of the University of California comes from the strength of its faculty. Collectively, they represent a tremendous resource that could be brought to bear on the problems of retention and transfer. We hope that this report, in a general way, and the continuing efforts of each campus in a more specific way, will help the faculty to become aware of the importance of the attrition problem in specific areas. Professor Howard Lenhoff of UC Irvine, the one faculty member of our Task Group, has already offered several ideas. We have included his paper on the role of the faculty in retention in toto in Appendix E.

Faculty discussions of these matters can be effective. For example, the Biology faculty at Irvine became concerned about academic competition among students and attrition in the department. They developed an undergraduate seminar course, so that all new students during their first quarter could meet with a faculty member who would serve as their advisor. Groups of no more than 15 students now meet for one hour per week with a senior faculty member and a peer advisor to get an academic orientation to the campus, and to discuss academic matters, such as the nature of the faculty member's research interests, the relationship of research to teaching, preparation for graduate school and career opportunities in academe. We also know of other efforts to bring students together with faculty in an informal atmosphere outside of the classroom. Programs such as these can facilitate academic integration and help to make the college years a very personal and meaningful experience for the student. We hope that the University will find ways to stimulate and support these efforts.

Terenzini and Pascarella (1979) found that both the quantity and the quality of student contact with faculty had a major effect on retention. Their findings are consistent with Pace's (1980) research, which showed that persisters had had more contact with faculty. Also, our telephone survey results indicated that persisters were more likely to have had contact with faculty outside of the classroom. But, we are also aware that students too frequently fail to take advantage of office hours and those opportunities that are available to meet informally with faculty. Because these are primarily matters of educational policy,

3. we recommend that each of the Academic Senate divisions discuss its campus's particular retention problems and consider ways in which the University might improve retention and transfer.

The Quarter System

We recognize that the pros and cons of different academic calendars continue to be the subject of debate and ballot within the University. Of course, many factors including cost and other academic concerns must be weighed before any decision to return to the semester system is made but,

4. we recommend that the following aspects of the semester system that appear to promote retention be contributed to the debate on the merits of different academic calendars:

   a. the semester system provides more time so that mid-term grades can be issued and can be used by both students and advisors as an early indicator of academic difficulty,

   b. most of the community colleges are on the semester system, which contributes to articulation difficulties, and

   c. the semester system provides more time, particularly in a student's first term, for the student to adjust to the University environment.

The Lower Division Curriculum

Over the past five years, as fewer students have been transferring from community colleges and more high school students have been applying to the University, the UC campuses have been admitting more students as freshmen. This has resulted in a slight but significant shift to the lower division. At the same time there has been a decline in the preparation of many students in their high schools. We indicated earlier that there have already been changes at several campuses in the introductory English and mathematics curricula. These changes are the result of a careful analysis of the lower division curriculum in those departments, in light of a growing number of poorly prepared freshmen. A similar analysis in other departments may identify other needed changes in the curriculum.

5. Therefore, we recommend that the Academic Senate consider strategies for responding to the fact that a growing number of freshmen are not prepared for University-level course work.

University Administration

In addition to these matters of educational policy, which we have offered for consideration by the Academic Senate, we offer several suggestions to the University administration. These recommendations are directed at academic support services, because we believe that they play an essential role in the broader concept of the education and development of the student.

Orientation and Advising

The University uses background factors to select those students who have the potential to succeed. Once they leave the high school or community college, where they were among the very best students in their courses, they enter a new level of competition with other very bright students who share their high aspirations. The quarter system moves along quickly, and soon most students find that their A's and B's of the past have become B's and C's. Sometimes the general shock of increased competition, combines with a weakness in preparation in one area, poor study habits, social problems or a personal crisis to produce D's and F's.

We believe that orientation counselors and academic advisors are crucial to helping students ease the shock of transferring to the University.

6. We recommend that the Chancellors pay particular attention to orientation and advising on their campuses. Adequate resources should be provided for these services, and efforts should be made to improve training and communication. Orientation programs should incorporate the findings of this study.

In addition, the University should make it clear from its first communications with students that there are positive benefits to participating in orientation and not waiting until encountering academic difficulty to talk with an academic advisor. Orientation programs must be more than just a pleasant social experience. During orientation every new student should be told that he or she has the potential to graduate. Each one of them can benefit from the rich University experience if he or she is motivated and gets involved.

Students should be advised to start with introductory courses that are consistent with their level of academic preparation and ability, begin with an appropriate course load, and recognize that approximately one-half of UC graduates take more than four years to complete the baccalaureate. Students should be encouraged to go to class, attempt to integrate new concepts in ways that go beyond course assignments, find a quiet place to study, use the campus learning skills center, learn to use the library, meet faculty outside of the classroom, and get involved with the broader social and cultural life of the University. The orientation counselors should explain that students who come to campus only to attend class,

and never attend a concert, go to a museum, see a basketball game or join a campus organization miss many vital aspects of the University experience, are less likely to graduate and are less likely to be satisfied if they do graduate (Bowen, 1978). Students who live on campus find that it is easier to get involved, and those students who must work should try to find a job on campus and work no more than 20 hours per week. And, each student can help to reduce the feelings of impersonality by making other students feel welcome here. Although at first glance this may seem somewhat trivial, we stress these factors because they are probably the most important to retention. For while it is true that only 30% of the variance in the academic performance of students can be attributed to background factors, well-planned orientation sessions and effective academic advising can have a significant impact on the other 70%.

Student Services

The University's student services play an important role in the broader concept of the education and development of the student. By providing tutoring and instruction in basic skills, academic support units can help students who enter with deficiencies in preparation. Other units help students to get involved in the various aspects of the University experience, and involvement is related to retention. As we move into the 1980's, some retention-oriented services may need to be expanded. Therefore,

7. we also recommend that Chancellors undertake a careful review of their student services units in the light of changing student needs. The increasing number of older, working and minority students, coupled with an increasing vocational orientation and inadequate preparation of more students, may necessitate a reorientation and possibly a reorganization of student services.

The results of the telephone interviews indicated that more students who dropped out than persisters were unaware of student service units, like the learning skills center, psychological counseling, etc., that might have been of assistance to them while enrolled. We know that these organizations on each of the campuses make special efforts to inform students about the services they offer, and yet those who may need them most may remain unaware of the existence of these services or of their need for them. We believe that a more effective strategy may be for campuses to develop a more proactive stance. Rather than advertising and then waiting for students to come to our student services organizations,

8. we recommend that campuses develop strategies for identifying "high-risk" students, contacting them individually and referring them to an advisor or appropriate student services unit.

Our failure to find a clear set of background factors that predict attrition suggests that the process of identifying "high-risk" students should not rely solely on background factors. Other early warning indicators

based upon performance at the University (e.g., failing the first examination in any of the large freshman courses and first-quarter grades) should also be used. This recommendation has already been implemented on the Santa Cruz campus, where the Provosts of the Colleges are concentrating retention efforts on those students who have been categorized as "high-risk," on the basis of the students' responses to questions that assess their commitment to completing the baccalaureate at that campus.

Clearly some students need more support than others. However, identifying some students as "high-risk" could provide an unfortunate stigma. Therefore, we suggest that all students be contacted, but that the nature of the contact vary with the amount of need. For example, "high-risk" students might receive a personal telephone call, while others might receive a letter with a brochure describing services available.

CHAPTER IV

CONCLUSION

We began with a charge that asked questions about the relationship between retention and enrollment, and we have offered several suggestions for maximizing retention without lowering standards. While we recognize that increasing the retention rate could offset a potential reduction in new students suggested by a declining number of California high school graduates, we also know that there are several factors that suggest that one should not expect a significant increase in the retention rate. In fact, recent increases in attrition in some areas would have already had an effect on enrollment if there had not been a tendency for those students who are still enrolled to take longer to graduate.

There are practical limits on the extent to which the University of California could increase the graduation rate from 7 out of 10 to something closer to 8 or 9 out of 10--limits on the ability to reshape either students or the University. We could adopt more selective admission requirements, but under the Master Plan for Higher Education in California we are asked to serve the top 12-1/2 percent of the high school graduating class. If anything, the declining level of preparation of our new students could mean increasing attrition. It is not clear at this time whether our preparatory courses and academic support services will continue to be effective in dealing with growing numbers of poorly prepared students, whether there will be adequate resources to fund these services on a larger scale or whether our long-term strategy to improve preparation in the high schools and Community Colleges will be successful.

Neither should one expect the University of California, one of the world's greatest research universities, to develop the intimate social community of a small liberal arts college. However, things can and are being done within academic departments, EOP programs, dormitories, fraternities, sororities, campus organizations and special interest groups to develop a sense of community among students with similar interests. While there are concerns expressed by students about its size and impersonality, there is also a recognition that the University's breadth and richness of programs and services cannot be matched by a small college. In spite of these concerns, we found our students to be very satisfied with the University experience.

Therefore, after rejecting radical changes we are left with but one course of action. The University must continue to search for the best ways to admit only those with the potential to succeed, and identify the marginal or "high-risk" students and provide them with the support to help them reach their full potential without eroding the quality of the program for those who are prepared. We must work with the high schools and Community Colleges to improve the academic preparation of students before they enter the University, and we must seek ways to minimize the shock of entering the University. Also, we must continue to offer the highest quality academic programs and to find ways to improve orientation, advising

and other student services. In short, we should admit those with the potential to succeed and provide an environment in which they are able to do so.

We conclude, as research inevitably must, with suggestions for further studies at the campuses that could answer questions that go beyond the charge to this Task Group. Why are attrition rates rising for some groups and on some campuses, and what should be done about it? How best can the University motivate those students who seem to be performing at levels below their potential? How effective are our student services and preparatory courses? Are they worth the cost? Several graduate students at the campuses have already expressed an interest in pursuing some of these questions. We trust that each of the campus groups will receive the support needed to continue to pursue these matters as appropriate to their local circumstances.

The University of California has an excellent reputation. Its baccalaureate recipients are highly sought after by business and industry, and the best graduate schools. On the horizon we see many challenges: poor preparation, the decline of the transfer function in the Community Colleges, and funding uncertainty. These factors could easily result in rising attrition. However, we feel confident that the University community has the bright minds and the State of California has the resources necessary to equal these challenges. We hope that this report will provide the essential information to stimulate further discussion of the issues. For as the circle of people discussing these issues broadens, so also will the number of creative new ideas increase.

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APPENDIX A

CHARACTERISTICS OF UC CAMPUSES BASED UPON INFORMATION IN THE 1980-81 UC UNDERGRADUATE APPLICATION PACKET

Campus	Location	Total Enrollment	Under-Graduate Enrollment	Number of Undergraduate Programs	Other Characteristics
Berkeley	Urban	29,063	20,073	125	The oldest campus, with the largest library and the most highly rated academic departments.
Davis	Rural	17,511	12,514	118	International reputation in Agriculture and Veterinary Medicine, along with Law, Medicine, Engineering and L&S.
Irvine	Urban	9,954	7,668	92	Irvine was opened in 1965 and now has programs in Medicine and Administration in addition to L&S. The campus ranked 12th nationally in the receipt of Guggenheim Fellowships.
Los Angeles	Urban	31,709	20,178	98	Ranked among the top 15 universities in the U.S. with the broadest spectrum of health science programs, programs, professional schools, and L&S departments.
Riverside	Urban	4,601	3,277	81	The UC campus with the richest student/faculty ratio and the atmosphere of a small private liberal arts college. The campus also provides opportunities for undergraduate student research.
San Diego	Urban	10,797	8,514	81	Organized into four residential colleges. One of the nation's leading research centers in the sciences with particular strength in oceanography.
San Francisco	Urban	3,710	376		Excellent health science programs in Dentistry, Medicine, Nursing, and Pharmacy. Some undergraduate health science programs, but no general campus undergraduate programs.

Campus	Location	Total Enrollment	Under-Graduate Enrollment	Number of Undergraduate Programs	Other Characteristics
Santa Barbara	Urban	14,473	12,623	93	Broad range of academic programs in L&S with professional programs in Education and Engineering. Also has a College of Creative Studies for students with exeptional talents.
Santa Cruz	Rural	5,880	5,334	79	Organized around eight residential colleges with an emphasis on the liberal arts. Students receive narrative evaluations of their academic performance rather than course grades.

APPENDIX B

GRADUATION RATES FOR UC CAMPUSES AND OTHER UNIVERSITIES

State Universities - Percent of Freshman Class Who Graduate from the Same Institution within 5 Years

	Freshman Class of	Graduation Rate
University of California, Berkeley	1972	63
University of California, Davis	1972	62
University of Illinois, Urbana*	1971	62
University of Delaware	1973	62
Purdue	1970	61
Pennsylvania State University	1974	60
Auburn	1969	54
State University of New York, Buffalo*	1974	53
University of California, Los Angeles	1972	52
University of Wisconsin, Madison*	1973	51
University of California, Irvine	1972	48
University of California, Riverside	1972	46
University of California, Santa Cruz	1972	46
University of Maryland	1974	44
University of California, San Diego	1972	43
City University of New York	1970	35
University of Minnesota (College of Liberal Arts)	1965	35

State Universities - Percent of Freshman Class Who Graduate from the Same Institution within 4 Years

	Freshman Class of	Graduation Rate
University of Michigan*	1975	50
Pennsylvania State University	1974	46
University of California, Berkeley	1972	44
State University of New York, Buffalo*	1974	43
University of California, Irvine	1972	40
University of California, Davis	1972	38
Auburn	1969	37
University of California, Los Angeles	1972	34
University of California, Riverside	1972	34
University of California, Santa Cruz	1972	34
University of California, San Diego	1972	31
Ohio State University	1973	22**
City University of New York	1970	22
University of Minnesota (College of Liberal Arts)	1965	19

* Faculty salary comparison institutions

** Estimated

APPENDIX B (CONTINUED)

Private Universities - Percent of Freshman Class Who Graduate from the Same Institution within 5 years

	Freshman Class of	Graduation Rates
Yale*	1974	86
Stanford*	1973	81
Cornell*	1972	79
University of Southern California	1973	60

Private Universities - Percent of Freshman Class Who Graduate from the Same Institution within 4 Years

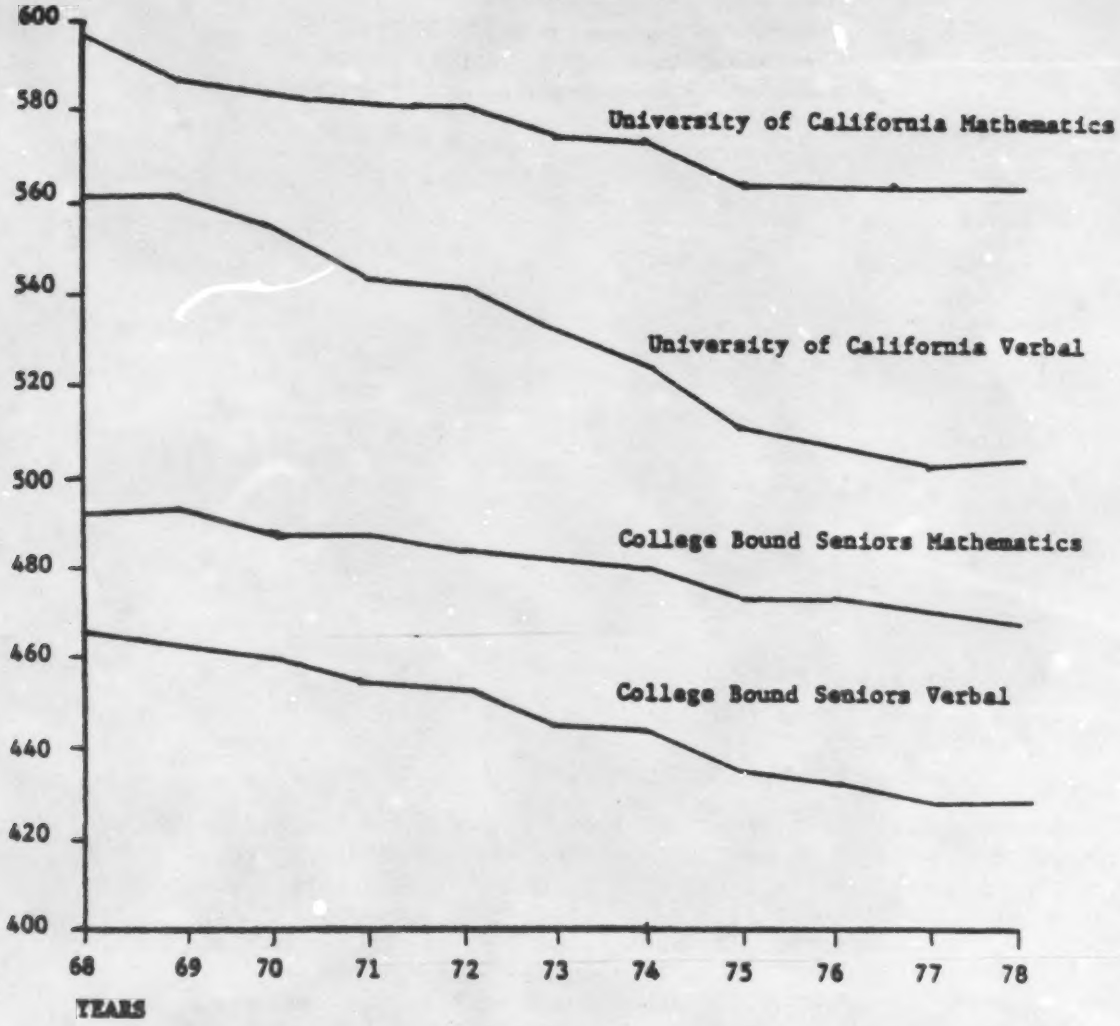
	Freshman Class of	Graduation Rates
Harvard University (average for 6 freshman classes)*	1970-75	75
Stanford University*	1973	69

* Faculty salary comparison institutions

APPENDIX C

INDICATORS OF DECLINING PREPARATION OF FRESHMEN

Figure C-1



SAT SCORES OF ENTERING UC FRESHMEN
AND OF COLLEGE-BOUND HIGH SCHOOL SENIORS

UC Systemwide Administration 1979

Before standardized tests were required for admission, the SAT was given to all freshmen at Berkeley in 1947. The mean SAT Mathematics score was 464; and the mean Verbal score was 487. A major testing of new freshmen at all campuses was conducted in 1960 to study the usefulness of SAT scores in admission. The mean mathematics and verbal scores had risen to 550 and 535. Beginning in 1968 all new freshmen were required to take the test. The results since 1968 are shown above.

Table C-1

Percentage of California High School Graduates Required to take Subject A Upon Entrance as Freshmen in Fall 1978

Campus	Regular Admits	Special Action
Universitywide	58.4	89.7
Berkeley	44.7	84.3
Davis	54.1	91.6
Irvine	67.7	97.9
Los Angeles	52.4	83.5
Riverside	50.9	83.1
San Diego	74.1*	98.1
Santa Barbara	73.0*	95.1
Santa Cruz	54.7	91.1

* The percentages of freshmen required to take course work to satisfy Subject A at the San Diego and Santa Barbara campus are relatively high for the following reasons: 1) all freshmen entering Revelle, Warren, and Third Colleges at San Diego are required to take a basic writing course, and 2) at Santa Barbara, all students scoring 550 on the ECT are required to take Subject A or an equivalent course. The figures should not be interpreted to mean that San Diego or Santa Barbara freshmen are less well prepared in writing skills than are freshmen at other campuses.

Source:
Letter from Academic Vice President Swain to Chancellors dated December 4, 1979.

APPENDIX D

DESCRIPTION OF SELECTED HIGH SCHOOL PROGRAMS IN MATHEMATICS AND SCIENCE

This document is a summary of visits to ten high schools in Los Angeles County and Orange County during the fall of 1979 by Dr. Mare Taagepera, who is a lecturer in the Department of Chemistry at UC Irvine.

Overview

Those high schools with a larger percentage of minority students have the lowest enrollment in science courses. Those minority students who do take these courses frequently have poor study habits and cover less material than students in other high schools. These minority students are then at a serious disadvantage when they enroll in University-level science courses.

Excerpts from visits to high schools with a large percentage of minority students.

One teacher mentioned the difficulty of teaching in a disadvantaged neighborhood, where 80% of the students are from one-parent families and have to work outside of school. The students are not motivated to take the "hard" courses.

At another high school the general feeling was that the quality of the students had declined in the last 2-3 years, and that the better students had been bussed to San Fernando Valley Schools. One teacher mentioned that this time last year he had been on p. 240 of his Algebra II text and that now he was on p. 70 and could not go any faster. Preparation in junior high courses and high absentee levels were mentioned as contributing factors. Also, neither of the two chemistry teachers was fully qualified to teach chemistry.

The faculty of another high school were somewhat demoralized, saying that even if they assigned homework, maybe 2 of 30 students do it (especially in the lower level courses). The teachers are faced with the option of either giving C's for sitting in class or F's and sending the student out of the school system into the streets. I suggested informing the parents that 1 hour of homework every night is expected. This was just done for the first time at another school and seemed to be effective. The faculty at this school, however, did not believe that informing the parents would work for a variety of social and economic reasons.

We talked to a biology and a chemistry class. Two of thirty chemistry students said they studied one half hour or more for a test. The rest studied five minutes or less. Approximately 80% of these students raised their hands when I asked how many of them were planning on going to college. I told them that they should start devoting at least 15 minutes for a chemistry test and building up their studying time to the college standard of 2-3 hours every night.

At another high school, a greater percentage of students were enrolled in science and mathematics courses, but the courses were taught at a low level. One teacher indicated that students could not grasp the more abstract concepts.

The teachers felt that those who give low grades are not popular with the school board, parents or students.

The graduates of one high school have done very well after transferring to the University. That high school has excellent science teachers who have masters degrees in their areas, and are strongly supported by their principal.

Excerpts from high schools whose graduates traditionally score high on the statewide standardized tests.

A larger percentage of the students take science courses in high school and have had better preparation in the junior high schools. There is an atmosphere of creative learning. During their lunch hour students were painting in the art studio and doing chemistry experiments in the lab.

Even at these high schools there is a tendency toward "senioritis". Bright students can meet most of the UC admission requirements by the end of the junior year in high school. If they take a large number of elective courses in the senior year, they will have forgotten much of what they had learned by the time they take freshman science courses at the University.

APPENDIX E

ROLE OF FACULTY IN RETENTION--THE VIEWS OF ONE FACULTY MEMBER

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Department of Developmental and Cell Biology
University of California, Irvine

March 26, 1980

Although I agree with the bulk of the report of the Committee on Retention and Transfer, of which I am a member, I feel that it puts too much of the responsibility for our students' leaving the University on the student, whereas it says little about the faculty's role. I divide this supplemental report into two parts: The first deals with my perspective on the role faculty does and can play in retention; the second lists a number of specific suggestions for action.

I. A PERSPECTIVE

A. Faculty may affect retention of those students who leave:
   1. to go to "better" schools;
   2. because of academic difficulty; and
   3. to fulfill professional career-oriented goals.

B. There are several major premises on which my contentions are based:
   1. If students are satisfied with their academic program, they will put up with many sorts of other problems and will remain at that institution until they graduate.
   2. Some faculty actually stimulate students to leave. For example, they may not prepare for their courses adequately, they may not encourage students to interact with them, and they may use their courses to "thin out" a program.
   3. Faculty can play a major role in retention by motivating students, by identifying early enough those students experiencing academic difficulty, and by participating in articulation efforts with high schools and/or community colleges.

C. A major source of this problem is that most faculty (as well as many academic administrators) are not aware of the serious implications of the retention problem for the future welfare of the University. That only one faculty member serves on this Systemwide committee testifies to the lack of either interest and/or concern, and also destines our report to being ignored or dismissed by the faculty as a whole. Whereas virtually all faculty are informed and concerned about the consequences of Jarvis II, and many have even been briefed on this issue by administrators from President Saxon on down--few if any meet to discuss retention problems. But unlike Jarvis II, retention is a problem that we can help solve from within and that is not dependent upon the whims of voters and the machinations of politicians.

D. Insight into the overall problem of getting faculty interested may lie within the nature of the University and the Master Plan. That is, the University is the research arm of the State and we select our faculty primarily for their research ability. As a rule we neither encourage nor reward our faculty for getting heavily involved in such matters as retention and transfer, matters for which we hire administrators and Student Affairs staff. But we are now entering the 1980s. These times bode to be much different from the expanding times of the University when the Master Plan was formulated. The continued excellence of

the University of California system may depend heavily on how we respond to these challenges.

II. SPECIFIC SUGGESTIONS FOR INVOLVING FACULTY AND FOR FACULTY ACTION

A. To inform, motivate, and reward faculty, the following steps are suggested:

1. The Academic Vice Chancellor on each campus instructs the Deans to instruct the Chairpersons to hold 1-3 faculty meetings in which:
   a. the enrollment and retention problems are clearly defined,
   b. the faculty are asked to identify areas for improvement in regard to retaining able students, and
   c. a departmental committee made up of committed individuals is formed.

   After a set period, a campuswide faculty committee drawn from the departmental groups is set up to make specific recommendations to the Academic Vice Chancellor and the Academic Senate.
2. An appropriate reward system is instituted for those faculty actively involved in programs affecting retention. These rewards need not "water down" our promotion and merit system. Instead they can be comparable to those "rewards" given to faculty administrators such as Chairpersons and Deans who sacrifice research time for the administrative good of the University. As an example, we may reward those faculty with one or more of the following: fewer appointments to other University committees; additional secretarial help; full or partial summer stipends; supplemental monthly stipends; sabbatical credit for summer employment; small research stipends; lower teaching loads for a particular quarter.
3. Just as we select only the "right" people to become administrators, we should also seek out and reward the more committed student-oriented faculty to participate in special retention activities. These activities are not to be assigned to most young or new, inexperienced faculty who have to develop their research programs, nor to "burned out" faculty who no longer carry on an active research program.

B. Advising

1. Special faculty-run seminars are held weekly during the first quarter for incoming freshmen and transfer students. In these seminars the faculty member is assisted by a peer student advisor. The sessions cover not only academic materials, but also such matters as adjustment to campus life and services available.
2. The faculty advisors meet with their new advisees before they register for classes in order to make certain that the students have selected proper and reasonable academic programs.

C. Helping Poorly Prepared Students

1. The faculty consider bringing to the campus remedial courses taught by selected community college faculty.
2. In this manner students can take University courses for which

they are prepared, and at the same time get additional help right on the campus in areas of weakness.

3. The implementation of such a cooperative program with the community colleges will require the participation of faculty in articulation agreements with the community colleges.

D. Innovative Use of Grading System to Identify Students In Trouble

1. Faculty, by analyzing the grade distribution in their classes, have the opportunity of recognizing students who are in difficulty. I suggest that immediately following the first midterm, faculty report to a staff committee the names of those students who appear to be in serious academic difficulty. This committee then seeks out those students, determines the reason for the difficulties, and sees to it that they get help.

2. To help students who have been poorly advised and who get into serious academic difficulty to the point that they are failing a course, I recommend restoration of an equivalent of the Z grade system for D and F grades only. Recall that for several years students (at least at UCI) could reject a grade and receive a Z. A grade of Z meant that the student received no grade or credit for the course. Hence, the student who really is not prepared adequately to take a particular course gets a Z rather than a failing grade. Of course students opting for the Z grade will still have to complete the required number of units in order to graduate, but they will not be penalized with a failing grade that will simply drive them deeper and deeper into academic difficulty. The Z grade will allow them to switch with dignity to a more appropriate field, if that is the best solution, without the burden of having to improve their grade point simply to stay in school.

   Use of the Z grade option will improve the academic standards of students who otherwise might have received failing grades. Let me explain. A student with a 2.0 average who gets an F will need to earn an A in order to maintain a 2.0; likewise, a B grade in a course will be needed to compensate for a D. Students in such a bind under present grading systems are under pressure to seek out courses that are considered easier to raise their GPA. On the other hand, students who do not receive D's or F's, but Z's instead, and whose GPA is therefore not at risk, as less constrained from taking more meaningful higher level courses that would contribute to their overall education.

E. Stimulate the Better Prepared and More Ambitious Students:

1. Honors programs should be continued and expanded despite the costs. Strawberry Creek College of UCB was a good example of a valuable program.

2. Because the faculty of the University of California are research faculty, they offer our students a chance for a unique educational experience not available to most students in the State University and College system and in smaller institutions--the opportunity to engage in scholarly research. Students who conduct research as undergraduates usually consider

that experience the highlight of their educational careers. I recommend that all honors level students be encouraged to participate in some sort of research program within their own disciplines and under faculty supervision. (The School of Biological Sciences at UCI has taken this research involvement one step further and publishes yearly a volume of student papers on their original research.)

F. Providing Students with Career Opportunities by Cooperative Programs with Other Segments of Higher Education

1. Many students leave the University in order to obtain professionally-oriented education that will allow them to obtain a job on graduation.
2. I propose that professionally-oriented students attend the University of California for three years and then transfer for two years of career-oriented courses to another segment of higher education, i.e., to either one of the state colleges, the private colleges, or in some cases, the community colleges. At the end of the five years, the student would receive a bachelor's degree from the University of California and another degree or certification from the second institution attended. For example, pre-med students who have a good scientific and liberal arts background, and who for various reasons do not pursue the M.D. degree, after three years may transfer to degree or certification programs in such fields as medical technology, nursing, physical therapy, nutrition, X-ray technology, or inhalation therapy.

G. Stimulating Faculty Involvement in Articulation with Community Colleges and High Schools

1. Two ways of having an articulation with community colleges have been touched upon in Items II.C. and II.F. Another way is to ask one faculty member to be a liaison between his or her campus and one community college. Involvement of faculty in addition to the ORS&C staff enhances the credibility of the University's interest in the community colleges. (I understand that UCD has such a plan in operation.)
2. One of the best ways to establish a long lasting relationship with high schools is through MAT programs by which the University provides special training and enrichment to high school teachers wishing to further their education. Once through a good MAT program at the University, the high school teachers become loyal and enthusiastic emissaries to their students. (A sloppy MAT program taught only by graduate students and part-time faculty, however, could have exactly the opposite effects.)

H. Encouraging the Best Students to Enter the UC System

In addition to the obvious means of seeking out good students to attend the University of California, I recommend that we provide admissions incentives to high school students to take more of the most rigorous high school course offerings so that they will improve their chances of succeeding at the UC. This is a matter for BOARS consideration and action.

III. CONCLUSIONS

These are but a few ideas on retention and transfer contributed by one faculty member who has been made aware of the problem. I am confident that many of my faculty colleagues would come up with better, alternate, and different ideas were they made aware of and convinced of the seriousness of the problem.

Concern for the academic ramifications of retention and transfer matters ought not to be considered as outside the scope of faculty interest at the University of California. The finest of our nation's private universities take pride in the role of their faculty as scholar-teachers. I am convinced that given a cross-section of the top teachers and administrators in the country, the best of these will be those who, in addition, are research scholars. They will be the ones who will excite and motivate students by their creativity, up-to-date knowledge, and love for their field. They are the ones who, experienced in scholarly research, innovation and critique, should be flexible enough to examine the common concerns of the university community.